

AD-A141 384

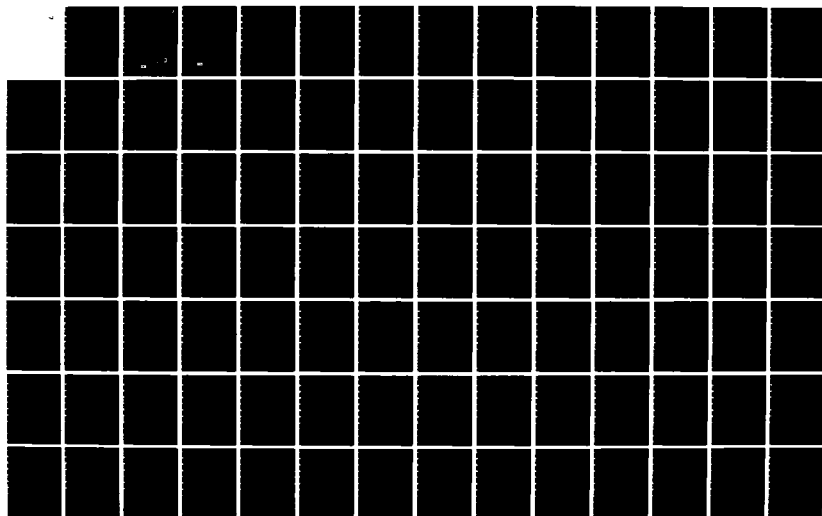
THE INTERACTING EVOLUTION OF SOVIET AND AMERICAN
MILITARY DOCTRINES(U) CENTER FOR NAVAL ANALYSES
ALEXANDRIA VA J H MCCONNELL SEP 88 CNA-PP-412

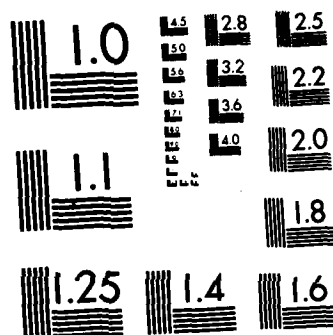
1/2

UNCLASSIFIED

F/G 15/7

NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

AD-A141 384

PROFESSIONAL PAPER 412 / September 1980

2

THE INTERACTING EVOLUTION OF SOVIET AND AMERICAN MILITARY DOCTRINES

James M. McConnell

DTIC FILE COPY

DTIC
ELECTE
MAY 21 1984
S D



CENTER FOR NAVAL ANALYSES

DISTRIBUTION STATEMENT A

Approved for public release
Distribution Unlimited

84 05 21 057

THE INTERACTING EVOLUTION OF SOVIET AND AMERICAN MILITARY DOCTRINES

James M. McConnell

Accession For	
NTIS GRA&I	<input checked="checked" type="checkbox"/>
DTIC TAB	<input type="checkbox"/>
Unannounced	<input type="checkbox"/>
Justification	
By	
Distribution/	
Availability Codes	
Avail and/or	
Dist	Special
A/1	



Naval Planning and Management Division

CENTER FOR NAVAL ANALYSES

2000 North Beauregard Street, Alexandria, Virginia 22311

THE INTERACTING EVOLUTION OF SOVIET AND AMERICAN MILITARY DOCTRINES

The fundamental question of the modern era, Moscow never tires of telling us, is the problem of war and peace. Fortunately peace has prevailed between the great powers. It has been an age of diplomacy, but diplomacy with a keen respect for what the Soviets call the "correlation of forces," including the military correlation. Behind the deterrence and counterdeterrence postures of the superpowers lie the options for the use of force that they believe to be viable and credible.¹

As the technologically more advanced country, the U.S. has taken the lead in developing options for most of the postwar period. We pioneered in all-out nuclear war. When our virtual monopoly of intercontinental-strategic weapons was broken at the turn of the 60s, we pioneered in options based on flexible response, although all development options were not thoroughly exploited. Special attention was given only to the bottom of the escalation ladder -- conventional war -- and to the top -- countervalue assured destruction. Considerable restraint was shown in developing options in between, i.e., tactical-nuclear, Eurostrategic and intercontinental-counterforce. As will become clear from my discussion, I do not make this observation in criticism of American development policy of the 1960s; our strategy, after all, was one of flexible response, and in the 1960s Moscow was taking

no development initiatives in these intermediate areas that required a major response. It is different in the 1970s. The history of the last decade suggests that, if we are going to respond quickly and effectively to new Soviet options, then we have to know at any point what they are up to and where they are going, in order to get our act together ahead of time. It is my feeling that we have tended to lag on both counts.

In the 1970s Moscow has indeed seized the development initiative. Soviet statements and the timing of doctrinal innovations reveal that their development strategy is realized in five-year increments, coinciding with the five-year plans. The evident objective is to acquire a new, independent option² in each five-year doctrinal period. In the first half of the 1960s, Moscow apparently felt it had only one viable option -- all-out world nuclear war. At the turn of 1965-1966, a conventional local-war option was added, as the underpinning for a Third World diplomacy of force. At the turn of 1970-1971, Soviet statements began to point to a limited intercontinental-nuclear option, involving initial counterforce strikes and countervalue withholding. Finally, at the turn of 1975-1976, evidence began to accumulate of a possible Eurostrategic counterforce option. This can be only a viable independent option if Soviet Eurostrategic systems are intended for eventual deployment in Eastern Europe, not the USSR; and Soviet discussions suspiciously imply that this has been the plan from the beginning.

This brings us down to date. If our estimates of Soviet doctrinal evolution are correct, we could legitimately infer a possible long-range development strategy, aimed at the systematic, methodical pursuit of the full range of flexible-response options, one at a time. Consider the developmental sequence. Ignoring the local-war, Third World tangent of the last half of the 60s, and focusing only on Soviet preparations for coalition war, the sequence suggests a design of working from the top of the escalation ladder downward. The easiest step would be the first -- all-out nuclear war -- which also has the virtue of protecting the highest values. Then would come a π a difficult option technologically, i.e., intercontinental counterforce, followed by what appears to be a full-fledged Eurostrategic capability on the next rung down. There are obvious dangers in schematic projection but, if the pattern holds up, we might see in future five-year doctrinal periods a Soviet commitment first to tactical-nuclear war and then to purely conventional war. Although my conclusion runs against the grain of much Western thinking, neither of these types of conflict as yet seem to have emerged as full-fledged independent options. There has been, since the mid-60s, a progressive expansion in the duration of both types of combat in Soviet strategy as distinct phases of a so-called "war by stages" that will "inevitably" escalate to the strategic level. Planning during the current doctrinal period seems to be in terms of a "strategic operation" of perhaps 30 days in the case of the initial conventional phase and

possibly a second strategic operation or even a campaign, of unknown duration, in the succeeding tactical-nuclear phase. One can only speculate, but the next Soviet step might be to plan for a whole war in the case of each option, but sequentially, not simultaneously. The sequential, step-by-step approach displayed in Soviet military development in general was presumably inspired by economic limitations, which would not permit concurrent development on all fronts. Moscow has not "changed its mind" over time; because of economic and technological constraints, it has had to "realize its mind" in increments.

This is the thesis in outline. It is necessary now to detail and document the interacting evolution, and suggest what the West might do to cope. But one final note before proceeding.

In collating American and Soviet doctrines, we are often warned against mirror-imaging; there are striking differences in strategic culture due principally, it is said, to the influence of Marxism-Leninism. I, too, would wish to warn against mirror-imaging, but find the source of the danger in a different direction -- in the failure to distinguish between relative capabilities for prosecuting various options. This is not to say that the selection or rejection of options is entirely value-free; in a relatively undifferentiated society such as the USSR, which is the case to a certain extent even in the post-Stalinist era, the influence of ideology is all-pervasive. Still, the impact of capabilities is such a dominating consideration in option selection

that it is almost certain to drown out the noise generated by ideology. It is true that capabilities do not emerge like Topsy, as the unfolding, say, of some inner technological logic; conscious decisions are usually made to develop and produce weapon systems, with some political and strategic purpose in mind, which of course gives leeway for the intrusion of values. However, it is difficult to find qualities in Marxism-Leninism that would lead Moscow to disdain any of the options of the nuclear era. These options amount to nothing more than exploiting available technology to meet different political and military contingencies, and to promote objectives of varying magnitudes at varying levels of cost, tailoring costs and levels of effort to benefits. After all, the history of the Soviet state has been largely a matter of advancing and protecting small interests as well as large ones, employing limited or relatively unlimited means as befitted the strategic situation and the value of the objectives.

It is not at all incidental that the Soviets seem to agree in principle with this estimate. Leninism has always enjoined that the proletarian state have the same capabilities as the capitalist, allowing them no "window" to gain entry.³ One of the great conceptual breakthroughs of the post-Stalinist era was the acknowledgement that, while socialist and capitalist societies were regulated by two different and incompatible sets of social laws, both were nevertheless subject to the same principles of war and would employ the same strategies in the armed struggle, to the extent

that "both capitalist and socialist societies have similar military equipment, and the character of the equipment is an important factor in determining the methods used in the armed struggle."⁴ Since the armed struggle is the proper subject of military science, this meant that the military science and military art of bourgeois and socialist states have "common foundations."⁵ This also meant common foundations for the so-called "military-technical" or "military-strategic" aspect of doctrine. The full force of Marxism-Leninism is spent on the "socio-political" side of doctrine, which specifies the purposes for which force is applied.⁶ The military-strategic side of doctrine, however, which specifies how force is to be applied and therefore selects its data from military science,⁷ is largely value-free and determined primarily by objective capabilities. Soviet personnel might execute their strategy more brilliantly and heroically, and from a higher sense of duty, but this does not affect the character of the methods used.⁸

It is important to emphasize, however, that while Soviet theoreticians implicitly warn against mirror-imaging, in practice they do not follow their own precepts. They mirror-image crudely, distorting Western strategy to accord with their own. This is not an unconscious process but a deliberate one, designed to serve the requirements of both propaganda and esoteric communication. With respect to the propaganda requirement, mirror-imaging promotes optimism on some occasions through denial of any Soviet lag in op-

tions; on other occasions, it legitimizes unique Soviet postures and initiatives as simple reactions to our own. With respect to communications requirements, it enables Soviet writers to use real or alleged Western intentions as surrogates for their own in sensitive matters. Recognition of this latter technique is absolutely indispensable if insight is to be gained into Soviet discussions, since in the military sphere sensitivity extends to almost every aspect of any importance.

U.S. Strategy in the 50s and 60s

What is strategic culture? One suspects it is a repository mainly for concepts of such long standing that their origins in very concrete circumstances have been forgotten. This has been the fate of mutual deterrence through mutual assured destruction (MAD); having become a free-floating concept, detached from time and place, it could even be projected onto the past. It is surprising to encounter the widespread notion, held by proponents and opponents alike, that MAD was born in America with the explosion at Alamogordo -- a spiritual fission product of the "second coming in wrath." There is, of course, this difference in the two attitudes. Proponents of MAD see it as the sign of unmerited grace, opponents only the stubbornness of the peccatum originale. Thus, men have always either worshipped their fetishes or belabored them

when life turned sour; in both cases they were coming to grips with enchanted phenomena.

Surely it is time MAD was brought down from the clouds onto firm ground. The concept itself may have followed hard on the detonation at Alamogordo, but only in principle; in practice it would take another 15-20 years for it to become a firm part of American policy. The strategies of neither the Truman nor the Eisenhower-Dulles era were keyed to assured destruction, much less mutual assured destruction; they were war-waging strategies, oriented on the benefits to be preserved rather than the costs imposed,⁹ and firmly rooted in perceptions of relative capabilities -- originally of an American monopoly of nuclear weapons, and, later, a decisive superiority in strategic delivery systems. When President Eisenhower in December 1953 lamented the prospect of civilization being destroyed, the context of his remarks, which we tend to forget, showed that they applied to the current situation in only a limited sense;¹⁰ it was precisely at this time that the Administration became openly committed to massive retaliation, with the clear implication that the U.S. itself would very likely be the one to initiate escalation to all-out war. Even Mr. Dulles' qualifications of the doctrine, beginning in 1957, were not so much based on any new strategic insight per se, as on emerging American tactical-nuclear capabilities not previously available in quantity,¹¹ coupled of course with the gradually improving Soviet

strategic posture, which over time was making an all-out U.S. response less attractive.

Nor did the Kennedy Administration, in reformulating U.S. strategic doctrine, move immediately and directly to MAD as the authoritative regulating principle at the nuclear level. Moreover, even after the move was made, MAD does not seem to have assumed quite the overwhelmingly central role in total American strategy that is often attributed to it by critics and defenders alike. "Everybody knows" -- what on occasion slips from consideration -- that a major and a secondary accent were placed on our conventional and tactical-nuclear options, respectively, both of which were based on war-waging strategies. Even though we will not be saying anything not already in the public domain, it might be useful to review U.S. development programs of the 1960s and the rationales behind them, in order to make our conceptual understanding explicit and provide an indispensable part of the setting for discussing Soviet development.

Moving in order from the bottom to the top of the escalation ladder, the U.S. development record of the 60s, put briefly and in an admittedly oversimplified way, was as follows:

- conventional forces -- initial restraint,¹² subsequent heavy development;¹³
- tactical-nuclear -- substantial initial expansion,¹⁴ subsequent stagnation;¹⁵

- Eurostrategic -- an early decision to phase out the enormous inherited arsenal (Thor, Jupiter, B-47) was consistently followed through;¹⁶
- intercontinental-counterforce -- initial heavy emphasis, subsequent disavowal and development restraint;
- intercontinental-countervalue -- originally intended only to deter all-out war, assured destruction became the only criterion for our strategic posture.

Put baldly in this way, U.S. development strategy seems arbitrary and inconsistent; in fact, it was neither. It did reflect two different successively-held strategic concepts, based on two different perceptions of the balance in development potentials, the first of which was later estimated by the Administration itself to be wrong. However, each of these concepts was coherently thought through and, given current U.S. perceptions of the balance, can even today be justified for their time by mainline deterrence theory.

Although designated as a response strategy, the approach initially taken by the Kennedy Administration in 1961 was in fact a strategy of escalation.¹⁷ It did not, to be sure, have the rigid escalatory character of the previous strategy of massive retaliation, and for it we might coin the term "strategy of flexible escalation." It is extremely important to recognize that the Administration at this time did not aim at an independent conventional

option for coalition war in Europe. We did want to build up our conventional forces to handle Third World crises more adequately. We also wanted a conventional buildup in Europe, but with the limited aim of negating Soviet "salami tactics." Because nuclear war is so destructive, the decision to initiate the use of nuclear weapons, even on a limited basis, has to be reserved for vital issues. But this meant that the side with conventional forces could use them on a relatively limited scale, taking a bite at a time, with each bite appraised in the West as itself not worth the costs of nuclear resistance. The Administration wanted forces sufficient to contain these limited probes and convince the Russians of American resolve. However, should the Soviet attack prove massive and therefore obviously aimed at major objectives, prevailing thinking did not aspire to stopping Moscow at the conventional level. In this, defense officials were under the spell of the strategic culture of the 50s, which despaired of matching the Russians in non-nuclear combat.¹⁸

It was this pessimistic appraisal of the Western conventional potential that determined the nuclear side of the strategy of flexible escalation. If the Soviets persisted in a massive conventional assault with which the West could not cope, Washington itself would have to make the agonizing decision to introduce nuclear weapons. However, the U.S. no longer had the luxury of a unilateral massive retaliation option; in the not too remote future the USSR would be able to respond in kind. Since the costs

of all-out war could not be readily justified by the interests at stake, the West needed limited nuclear options.¹⁹ Adoption of this strategy of graduated or flexible escalation determined the large-scale buildup of tactical and strategic nuclear forces that followed. The Administration persisted in strategic expansion -- indeed, levels were raised -- even after it had determined to its own satisfaction that the "missile gap" was a myth.²⁰ Exposure of the myth may even have contributed to expansion, since it made counterforce a more viable option.

As in the case of massive retaliation, the U.S. now relied upon a war-winning nuclear strategy,²¹ but one in which both sides exercised countervalue restraint; mutual assured destruction operated in the narrow sphere of deterring, not strategic nuclear war in general, but only its all-out form. Critics of the McNamara strategy have wondered why Moscow would consent to eschew the countervalue option, in which it could claim credible capabilities, in favor of a counterforce option, in which it was clearly inferior. There can be no doubt that McNamara appreciated this critique in the abstract, but he also seems to have appreciated the very concrete conditions that would vitiate it. The decision to resort to any option is based not only on a relative-effectiveness calculus but on a cost-benefit calculus. Moscow itself would have to make the decision to escalate to all-out war, and the costs incurred in all-out war today cannot be justified by any

conceivable set of aggressive objectives; rationally, it could at best be justified only by defensive objectives, i.e., the preservation of the Soviet system. If Moscow could be convinced that down the escalation road it would be put in a decision-making bind by Washington's nuclear counterforce option -- and Mr. McNamara was doing what he could, through declaratory policy and strategic development, to carry conviction on this score -- then it might be persuaded to abjure force entirely. In the competition to shift the decision-making burden onto the opponent's shoulders -- which, after all, is the very essence of a successful diplomacy of force -- the Soviet Union would enjoy the initial advantage, with its presumed superiority in conventional forces, but the "last word" might very well belong to the U.S., if it could establish a credible superiority in limited nuclear options.

The high point in the American commitment to a strategy of graduated escalation came with Mr. McNamara's speech at Ann Arbor in June 1962; subsequently the whole edifice was gradually dismantled in favor of a full-fledged strategy of flexible response. The old strategy had already led to an abandonment of the Euro-strategic option, and the new strategy gave no cause to take it up anew. However, flexible response did determine the new interest in large-scale conventional conflict as an independent option, the downgrading of tactical-nuclear development, and the shift from counterforce to countervalue as the basic rationale for strategic programs. There is little or no mystery about the shift to an in-

dependent conventional option. Skeptical from the beginning of prevailing estimates of Soviet conventional strength, the Administration was able to demonstrate to its own satisfaction from a thorough intelligence review that, with little additional effort, the West could hold its own.²² However, the Administration has not been as successful in clarifying its rationale for reduced nuclear objectives.

McNamara's biographer has presented the lowering of ambitions as purely a matter of strategic re-thinking: up to Ann Arbor, McNamara was relying on the inputs of others; later he was thinking for himself.²³ McNamara's published explanations, too, seem to turn mainly on calculations at the level of strategic systems: the abandonment of a nuclear counterforce strategy was predicated on our inability to disarm the USSR completely in a first strike and thereby prevent unacceptable damage from a Soviet countervalue strike.²⁴ Clearly, this cannot be the explanation. McNamara's Ann Arbor strategy was advanced in the full knowledge that we could not execute a disarming strike; and in returning to counterforce development in the 1970s there was just as full a recognition that the goal of a disarming strike is even further removed, if only because the USSR now has a viable sea-based strategic system. In both cases U.S. strategy was based, not on a capacity to disarm the USSR unilaterally, but on Soviet self-restraint, assumed to be as much in their as in the American interest in a wide

range of contingencies. There was as much reason to count on that self-restraint during the decade 1963-73 as in the periods before and after.

In fact, the explanation for lessened U.S. nuclear ambitions should not be sought at the nuclear level itself but at the conventional level.²⁵ The perception of Western conventional incapacity had fed the drive for limited nuclear options -- a strategy of escalation.²⁶ The correction of that perception now set the stage for their downgrading or abandonment -- a strategy of response. Given the same potential for effectiveness at all levels, in a contest of political wills a strategy of response is far superior to a strategy of escalation.²⁷ A little reflection will show why this is so. A decision to respond in kind involves no costs whatsoever; the costs have already been incurred by the enemy's attack. A decision to escalate, however, generally involves additional costs, expended for an objective that remains the same in value. Even if the objective is worth the additional costs, the cheaper price is always preferable to the more expensive.

Thus, the first principle of a strategy of flexible response can be expressed aphoristically as follows: I make all the easy decisions; my opponent makes the hard ones. However, to appreciate how this shift in the decision-making burden is made possible, one must move from the cost side of the calculus to the effectiveness side: Whatever my opponent can do, I can do better. Now

that the Administration had altered its perception of the conventional balance and no longer needed limited nuclear options as part of a strategy of escalation, it only had to examine the balance at the various nuclear levels in terms of the strategy of response. In other words, flexible development does not imply flexibility in the abstract, an impartial across-the-board attention to all options. The calculation has to be dynamic rather than static, examining the interaction between the levels and within the levels. In short, there are only two good reasons for developing any particular option: (1) if you yourself need the option unilaterally (a strategy of escalation) or (2) if the opponent has taken the development initiative and you have to match him (a strategy of response). Should neither contingency exist, the field of potential development can lie fallow or at least not receive full cultivation.

The Administration had already determined that the West, given modest improvements and the will to maintain the balance, did not itself need a tactical-nuclear option, except in the limited sense of insurance, a hedge against the unanticipated failure of our conventional option due to the emergence of a greater than expected threat;²⁸ this, however, was a far cry from the previous tactical-nuclear perspective, predicated on an anticipated conventional failure from an expected threat. When it turned to Soviet tactical-nuclear development initiatives, it concluded that the

U.S. was not only "substantially superior" at this level,²⁹ but that Soviet systems lacked both the accuracy and the reduced nuclear yields for an independent tactical-nuclear option.³⁰ As Secretary of the Army Vance put it at the time, their capability amounted to "a blunt and imprecise instrument, better suited to operating in conjunction with a strategic exchange than in limited nuclear conflict."³¹ Given this perception, the U.S. could afford a cavalier neglect of tactical-nuclear development beyond a certain (already achieved) level of superiority.

At the Eurostrategic level, there was even less reason for development emphasis. The West did not need the option for a strategy of escalation, even as a fallback, and Soviet capabilities, while large, were not such as to permit an independent option. The lack of accuracy and the high yield of Soviet medium- and intermediate-range systems would make a Eurostrategic attack indistinguishable from an all-out effort. Perhaps more to the point, since these systems were deployed at fixed sites in the USSR rather than in Eastern Europe, an exchange of Eurostrategic strikes would automatically involve Soviet territory; and if Soviet territory were involved, it was unlikely that the U.S. itself would escape unscathed. Given the inherent instability of any practical Soviet Eurostrategic option at that time, therefore, flexible response would be unimpaired if Soviet Eurostrategic systems were countered by weapons deployed in the U.S., where (given

the greater warning time) they would be less vulnerable than in Europe.

The same reasoning apparently operated at the intercontinental level to downgrade the Ann Arbor counterforce strategy. The West was expected to hold at the conventional level, and if not there, then at the fallback tactical-nuclear level. The requirement no longer existed for a Western counterforce initiative; development of the option now turned on Soviet capabilities. Again, it was concluded that the USSR lacked the capability for an independent option. On the one hand, it did not have the kind of countervalue systems that could be securely held in reserve. On the other hand, given the state of ICBM technology in the 60s, when even under conditions of parity the ratio of targets killed to missiles launched could never be as much as one, much less greater than one, the U.S. would be in the superior position even after taking the full fury of a Soviet first strike -- and the larger the Soviet first effort, the greater the U.S. margin of superiority in the aftermath.³² In the jargon of the trade, the second strike was stronger than the first strike.

It was therefore concluded that Moscow had the capacity only for all-out war with the accent on countervalue;³³ it was sufficient for the U.S. to respond to this in kind, using assured destruction as the only criterion for strategic development. In McNamara's view, an all-out attack on the part of the Russians was

not a viable war-waging strategy; it was credible only if the survival of the Soviet system was at stake. Since the U.S. had no aggressive intentions, money could be saved on expensive tactical and strategic programs and development and training focused on other options; studies, therefore, tended to terminate with the initial exchange of strategic strikes. To continue to prosecute the counterforce option would also have a bad effect on the Russians. If their view of the balance at all levels was roughly the same as that of the U.S., Moscow would not unreasonably conclude that Washington nourished ambitions that went beyond the deterrence of Soviet initiatives, thereby fostering instability, heightening tension and promoting an unnecessary arms race. Under the circumstances, the more responsible approach was to permit parity in assured destruction; this would allay legitimate Russian defensive anxieties without providing rational grounds for the offensive use of strategic weapons.

It is hard to fault the Kennedy-Johnson Administrations on their strategic logic; an attack on their development approach, to be successful, would have to be against McNamara's understanding of the balance at the conventional, tactical-nuclear and strategic levels, where his logic took its point of departure. This author can claim no expertise on the real balance at any of these levels. However, even a correct appreciation of the balance (assuming there can be such, short of the test of war) is less relevant than Moscow's perception of it, however flawed. In this connection,

one can legitimately infer from Soviet declaratory policy that Moscow's perception was much the same as Washington's.

Soviet Strategy in the 50s

Soviet strategic thinking is normally revealed in highly abstract formulas, one of the most important of which is that dealing with determinants of the "course and outcome of war." As Colonel Pyatkin wrote a quarter of a century ago, "To know the law-governed character of war means, above all, to know how war originates, what its nature is, and which factors determine its course and outcome."³⁴ Indeed, as we shall see, the changes rung on this theme constitute a faithful register of shifts in Soviet military doctrine.

The declaratory doctrine of any country is usually framed to highlight its own strengths and depreciate those of a probable opponent. As is known, in the late 40s and early 50s, the USSR denigrated the importance of nuclear weapons; only the "permanently operating factors" could decide the course and outcome of war. Soviet strategy evidently envisaged a relatively uncontested occupation of Western Europe; the U.S. would retaliate with strikes against Russian cities, but these could not inflict unacceptable damage, much less dislodge the Soviet occupation and decide the fate of the war. The Soviet scenario reflected an asymmetry in

capabilities, not differences in ideology: on the one hand, Soviet conventional superiority; on the other, the American nuclear monopoly, but still in conditions of warhead scarcity.³⁵

The beginnings of a change in the Soviet orientation took place around 1953-54; one suspects it had far less to do with the death of Stalin and the recasting of the Soviet ideological action program than with the emergence of new capabilities on both sides. The U.S. was rapidly expanding its stockpile of nuclear weapons and improved delivery systems;³⁶ at the same time, it was abandoning plans, inspired by the Korean War, to beef up Western conventional capabilities. In Mr. Dulles' view, nuclear war was inevitable; that is the terminology of a power who sees its strength in escalation and its weakness in conventional response. Soviet capabilities, however, reflected the transition from conventional to nuclear operations. The American nuclear monopoly was broken, and conventional forces were being gradually drawn down to pay for the costs of developing this novel potential. Soviet spokesmen in the mid- and late-50s referred only to the "possibility" of nuclear weapons being used in a future war; however, once the war went nuclear, it could not be confined to tactical action but would "inevitably" be all-out. This was the terminology of a power that still saw its strength in conventional as opposed to nuclear forces and, within the nuclear context, in strategic rather than tactical weapons. According to General-Major Pokrovskiy, "atomic

and thermonuclear weapons at their present stage of development only supplement the firepower of the old forms of armament." Nuclear strikes in the depth of enemy territory could exert only a "significant" influence on the "course" of the armed struggle; it could not exert a substantial, much less a decisive influence on the course, and evidently would have an effect less than significant on the outcome. The "decisive" impact on the outcome of war was reserved for the Ground Forces.³⁷ Presumably because of limited damage to the rear, the war would inevitably assume a protracted character, extending over a series of campaigns.³⁸

Because of the growing importance of nuclear weapons, Moscow could no longer ignore the role of surprise in war. Although it was declared that the permanently operating factors had "always decided and will always decide the course and outcome of wars," the transitory factor of surprise could have an "influence," though not a decisive one, on both the course and outcome. To neutralize the effect of surprise, the USSR could not rely upon a "meeting strike" (launch on warning), much less a second, retaliatory strike; because of the vulnerability and slow reaction time of Soviet systems, Moscow felt it would have to undertake a preemptive strike based on strategic warning of Western aggressive intentions.³⁹ It may have been this perceived requirement to take

the initiative in all-out war that determined Soviet rejection of Malenkov's thesis on nuclear war meaning the end of world civilization, with its implicit MAD assumptions. It is rational to tout unacceptable damage as a retaliatory measure, since retaliation imposes no costs upon oneself; they are all upon the enemy. However, if you yourself have to take the initiative, unless it is a disarming strike -- and the Soviets seem to have had no illusions as to their capabilities on this score -- it would not make sense to advance your own suicide as a rationale for action. Preemptive resolve and credibility could not be mustered by promising costs, which would be incurred by both sides, but by the prospect of unilateral benefits: victory; the demise of capitalism; the triumph of socialism; a bright future for mankind.

There are instructive lessons to be gained from Soviet strategy in the first decade and a half of postwar history. One is the slight respect that should be accorded Soviet doctrinal statements as an earnest of long-range development intentions. As the Russians have told us time and again, military doctrine takes note only of "the present" (the period up to two years away) and the "immediate future" (three-five years away).⁴⁰ Thus, however categorically Stalin might have denied the impact of nuclear weapons on the course and outcome of war, his remarks were strictly of doctrinal significance and, as such, looked no further ahead than the hardware, missions and training programs of the current five-

year plan. Subsequent events would show, however, that his development strategy, presumably formalized in ten- and even twenty-year plans, took careful account of nuclear weapons and the means for their delivery.⁴¹ We would have done well to have recalled this lesson in dealing with equally categorical statements of the 60s on all-out nuclear war as the only possible scenario for a coalition conflict.

Soviet Coalition Strategy in the 60s

With the formation of the Strategic Missile Troops in late 1959, the USSR entered fully into the nuclear era. In the fall of 1961 the commander of these troops, Marshal Moskalenko, explained that his new branch could itself exert, not just a significant, but a stronger "substantial" influence on both the course and outcome of the war as a whole.⁴² According to the line of the day, the first unlimited nuclear strikes would permit the achievement of the war's "immediate" objectives, i.e., the objectives of the first strategic operations in the theater of military action, in the "initial period" of the war, and the results of this initial period in turn would "decisively" influence the entire "course and outcome of the war" in the subsequent period.⁴³ In the last half of the 60s, with the further accumulation of nuclear weapons, it was declared that, not the overall results of the initial period,

but even the first strikes by the Strategic Missile Troops in the initial period would have a "decisive" influence on the war's course and outcome.⁴⁴

In the Soviet view, the war would "most likely" be of "brief duration," i.e., a skorotechnaya war.⁴⁵ I have never found a Soviet definition of such a war; however, they have defined a Blitzkrieg as a skorotechnaya war carried out with the aim of achieving victory "in days and weeks."⁴⁶ In "the most favorable circumstances," the "final" objectives of the war could be achieved simultaneously with its "immediate" objectives, which usage shows to be the objectives of the "first strategic operation" making up the war's "initial" period.⁴⁷ However, the most probable duration envisaged was apparently that of a single "campaign;" i.e., to employ Soviet terminology, the war's "final" objectives would be achieved simultaneously, not with the attainment of its immediate objectives (the objectives of the first strategic operation), but with the attainment of its "intermediate" objectives,⁴⁸ which usage shows to be the objectives of a campaign made up of two or more successive sets of strategic operations.⁴⁹ In World War II, Soviet strategic offensive operations lasted from 12-30 days⁵⁰ and campaigns from three-five months. However, the Soviets explicitly recognize that, in a nuclear war, both types of organized military action will be conducted at higher tempos and be of significantly less duration.⁵¹ It is not out of order, therefore, to assign to

the skorotechnaya war envisaged a duration measured, at most, in weeks. On the other hand, while a "war of brief duration" was considered the most likely assumption,

It is not excluded that the war might assume a relatively protracted character. The belligerent parties, having quickly expended the stockpiles of nuclear weapons created in peacetime, and lacking any possibility of producing them during the war, especially in its final stage, will accomplish operational-strategic tasks basically with conventional means....⁵²

I would ask the reader to bear in mind this Soviet thesis of the 60s both on the course and outcome of the war and on its brief duration, which was clearly connected with its all-out character -- the severe damage to economic capacity, manpower reserves and popular morale from countervalue strikes.⁵³ The alterations in both aspects of this thesis in the 1970s, as we shall see, would be one of the most potent indicators that Moscow had acquired a limited nuclear option.

But that would be to get ahead of the story; in the 60s, for coalition war, Moscow would entertain only the all-out option. According to one set of authors, "world war, if it does break out, will inevitably become total nuclear war. The destructive power of the nuclear weapon will be utilized to the maximum...."⁵⁴ According to other authors, "the 'limited war' doctrine is false, because nuclear war differs in principle from all previous wars in that it cannot be limited."⁵⁵ It was granted that a coalition war

could begin in a limited way as well as through an all-out surprise attack, but even a limited conflict, "if...not liquidated in the shortest possible period of time," would necessarily escalate.⁵⁶ One gains the impression from Soviet statements and exercises of the first half of the 60s that escalation would be more or less immediate. Statements and exercises of the last half of the 60s, however, reflected the new Soviet concept of a "war by stages." Conflict would begin conventionally but ultimately progress to the tactical-nuclear and then to the strategic level. Since escalation beyond the lower levels was inevitable, Moscow deemed the "war by stages" only another scenario for all-out war, alongside a nuclear surprise attack.⁵⁷

In the early 60s at least, the Soviets continued to adhere to a preemptive strategy;⁵⁸ later, with strategic parity in sight and with dramatic improvements in survivability and reaction times, Moscow evidently felt secure enough to plan the launching of its "retaliatory" strike on warning.⁵⁹ In either case, once the war reached the strategic level, it would be all-out from the very beginning, employing the "maximum" number of nuclear warheads in the initial strikes.⁶⁰ Within strategic forces, no sharp distinction was made as to the timing or the targeting of strikes; for example, every targeting list of the 60s for the Strategic Missile Troops covered both military and civilian targets.⁶¹ It was em-

phasized that the initial strikes would be targeted "simultaneously" against both military objectives and urban-industrial facilities, and be conducted "simultaneously" by all three components of the strategic forces -- Strategic Missile Troops, Long-Range Aviation and conventional and nuclear-powered ballistic missile submarines (SSBs and SSBNs) -- on the basis of a "single integrated plan" (edinyy plan).⁶²

There is not the slightest hint in the 60s that the Soviets intended withholding any submarine-launched ballistic missiles (SLBMs) for intrawar deterrence. There is convincing evidence that, for about a year after the XXII Party Congress of 1961, Moscow did plan to withhold some SLBMs from the initial strikes. However, these apparently constituted a war-waging reserve for strikes against military targets in adjacent ground theaters; they were not a reserve for threatening cities in the interior. Moreover, even this limited venture in creating reserves was abandoned in the aftermath of the Cuban missile crisis;⁶³ drawing lessons from history, Admiral Belli in 1964 emphatically repudiated the "doctrine of withholding forces" (doktrina sokhraneniya sil).⁶⁴ In 1966 Admiral Kharlamov referred to navies being in "the first echelon of strategic strike forces;" there were no references by him or anybody else to SSBNs being in the second echelon of such forces, much less the reserves. Other statements indicated an awareness that, if the USSR escalated to all-out war, the U.S.

would reciprocate. To prevent the enemy from launching SLBM strikes, the Soviet navy had to be prepared "to ensure powerful action against submarines at once, without delay, from the very beginning...."65

The introduction of the Yankee-class SSBN in the late 60s produced no change whatsoever in this aspect. Admiral Stalbo in 1969, presumably using the capitalist fleets as surrogates for his own, asserted they would take part in the first strikes.⁶⁶ In the same year Admiral Kasatonov criticized the great powers of the battleship era for withholding their capital ships from combat in order to use them as a political instrument in war termination.⁶⁷ That Kasatonov was not simply railing at established policy -- it is time we treated more critically the notion that the Soviets debate the roles and missions of the armed forces in the open literature, even esoterically⁶⁸ -- is implicit in a discussion during that very year by the editor of the General Staff journal. His remarks strongly implied that, if any SSBN failed to participate in the initial strikes, it would be by inadvertence and not by design -- an inability to reach its assigned launch station on time.⁶⁹

Moscow evidently felt that the ten Yankee SSBNs they would have by the end of the current doctrinal period in 1970⁷⁰ would be insufficient for an assured-destruction reserve against both Europe and the United States, especially considering the attrition

the Yankees would suffer in breaking out to launch stations in the Atlantic. Since there would be no distinction in timing between ICBM and SLBM strikes, it would make more sense to use ICBMs to lay America waste and to target SLBMs on Europe and Asia from the comparative safety of home waters. In short, except for those normally on patrol in the Atlantic and Pacific, perhaps beefed up to some extent in a "period of threat," it seems unlikely that the Yankees were ever assigned missions against the continental U.S.

In insisting on the "inevitability" of escalation to all-out war, the USSR was apparently only following the maxim of many another power: speak only of your own strong option and dismiss as of no consequence the options of your opponent. Thus Mr. Dulles, too, had had a declaratory strategy of inflexible escalation; he would not play the Russian game of conventional war. With Mr. McNamara's strategy of flexible response, as it gradually emerged from 1963 on, perceived strengths were just the other way around: the sword (nuclear weapons) became the shield; the shield (conventional weapons) became the sword. Hence, his insistence on the rationality of conventional action (the West's strong suit) and his unceasing efforts to downgrade the political impact and viability of a nuclear strategy (the USSR's strongest suit, but one in which it could legitimately claim, at best, only parity).⁷¹ Perhaps no more subtle depreciation has been manifested for an opponent's preferred option than in McNamara's doctrine of mutual as-

sured destruction. In effect he was telling the Russians: I do not believe you will exercise your all-out nuclear option, because I know I would not do so myself. He neglected to add what other contexts suggested he believed with an uncertain degree of conviction, that the U.S. probably did not need the option, whereas the Russians did. Still, in spite of mutual assured destruction, McNamara never foreclosed a nuclear initiative; after all, mistakes can be made in estimating the balance in capabilities, and he had to placate our European allies, whose preferences remained fixed on the strategy of graduated escalation.

Moscow's declaratory policy, however, suggested that no fundamental U.S. mistakes had been made in estimating capabilities. The Russians were willing to assert the value of assured destruction threats in inhibiting a large-scale nuclear attack on the USSR; witness the numerous statements that the U.S. was "deterred" by the Soviet Union's nuclear-missile might. However, Moscow in the 60s -- in the 70s it would be different when the USSR acquired more varied capabilities -- refused to recognize the American doctrine of mutual assured destruction. Evidently unsure of its limited options, Moscow felt it would have to assume the burden of escalation, in which case the damage the USSR was sure to receive in return could hardly be designated "unacceptable."⁷²

Indeed, in conditions of countervalue parity, the escalating power is wiser to avoid the question of costs altogether. We repeat once more: a decision to respond in kind involves additional damage only to the enemy; the damage to yourself has already been incurred by the enemy's attack. A decision to escalate, however, would involve equally gruesome losses for your own side; there are simply no rational grounds to justify a strategy of escalation in terms of costs. Any claim to an advantage from escalation would have to be based on a war-fighting effectiveness that would bring victory for your own side and defeat for the opponent. Hence, the equally prevalent Russian theme that "war" in general, and limited coalition conflicts in particular, could be "prevented" only through the "combat capabilities of the armed forces" as a whole, prepared to wage, not a conventional, but an all-out nuclear war. The calls for "victory" frequently sounded in these discussions were, to a sophisticated Soviet reader, redundant. "Combat capabilities" are defined in such a way as to include the notion of victory through armed struggle; and time and again the Russians have reiterated the injunction of Soviet military doctrine, that "victory" in war can only be achieved by the coordinated efforts of all the armed forces, and not by strategic nuclear forces alone. The destructive potential of the latter was deemed sufficient for deterring an all-out attack but the prevention of limited attacks had to be predicated on the capabilities of the armed forces as a whole for waging nuclear war.⁷³

Thus, crucial disparities emerged in the Soviet and American diplomacies of force. The U.S. had two different options, and employed two different methods of calculating, to cope with two different contingencies. An all-out nuclear attack (first contingency) was to be deterred by the threat of unacceptable damage (first method of calculating) from an all-out nuclear response (first option). A Soviet conventional attack (second contingency) was to be prevented by the threat of a Western victory (second method of calculating) from a Western conventional response (second option). The USSR, on the other hand, had a single option, but employed the same two methods of calculating, to cope with the same two contingencies. Just as in the U.S. case, an all-out nuclear attack (first contingency) was to be deterred by the threat of unacceptable damage (first method of calculating) from an all-out nuclear response (only option). But unlike the U.S. case, a conventional attack (second contingency) was to be prevented by the threat of victory (second method of calculating) from an all-out nuclear escalation (only option).

So far, we have deduced Russian perceptions of their strengths and weaknesses in the 60s from the logic of their declaratory policy and strategy. Was there anything from the Soviet side that would tend to substantiate these deductions? If Moscow felt a conventional inadequacy, it was certainly reluctant to advertize it; by and large the question was simply ignored. However, the Chinese, who understand Soviet modes of discourse best,

have recently stated that Khrushchev's negative attitude toward conventional war had "slackened the development of conventional weapons...."⁷⁴ The Department of Defense under both Rumsfeld and Brown has retrospectively validated McNamara's estimate with comments that Khrushchev's "New Look," with its "general deemphasis of conventional capabilities,"⁷⁵ had produced "a relatively poorly armed and trained force."⁷⁶ Most American analysts would probably agree with Lambeth, "that at the time these doctrinal themes [of inevitable escalation] were being given expression, Soviet conventional forces had been reduced to near austerity levels in the wake of Khrushchev's single-minded emphasis on building up the recently created Strategic Rocket Forces...."⁷⁷

At the tactical-nuclear level, Khrushchev himself has reported rejecting military requests for nuclear artillery and greater accuracy in tactical missiles, resolving to concentrate on strategic weapons instead.⁷⁸ But even at the strategic level the development was selective. Judging from Soviet statements, which are all the more credible in this case for being esoterically expressed, Moscow had few illusions as to its damage-limiting capabilities. Beginning in 1963, and continuing right down to the present with only a few exceptions, Soviet spokesmen have indifferently designated the objective against ICBMs, SSBNs and strategic bombers in their bases, for both the Soviet Union and the U.S., as one of simply "degrading," "significantly degrading," or "degrading to the maximum extent possible." Since the overall combat objective

against SSBNs is the same as for SSBNs in their bases -- "degrading" in both cases⁷⁹ -- this leaves little or no margin for attrition in warfare at sea, an inference that could be confirmed from Soviet statements, made even when insistence on the vulnerability of Polaris was the prevailing line.⁸⁰ In the mid-60s the Russians reported the combat objective against U.S. attack carriers, when they were still integrated with the strategic strike plan, as one of "substantially degrading" or "smashing" them.⁸¹ By the 1970s, however, when carriers were no longer on the strike plan, the objective was lowered to inflicting "significant degradation."⁸² Once the missiles and bombers had been launched, Soviet authors claimed on one occasion in 1968, "a well-developed anti-missile and anti-air defense can reliably repel an opponent's air-cosmic attack, i.e., can substantially degrade the consequences of his surprise attack...."⁸³ After the missiles have impacted, civil defense can further "degrade" their effects.⁸⁴

Soviet definition and usage shows all such terms to have quantitative implications. According to one Soviet military author, in designating the combat objective, "wiping out" (unichtozhenie) implies 80-90 percent attrition; "smashing" (razgrom) 70 percent; inflicting a "defeat" (porazhenie) 50 percent; "substantially degrading" (sushchestvennoe oslablenie) 30 percent; and simply "degrading" (oslablenie) 10-15 percent.⁸⁵ Normally, in

using these terms to discuss actual wars and battles, the Soviets do not at the same time provide actual figures on attrition, which would enable us to confirm or deny a common definition. However, on one occasion the Commander-in-Chief of the Soviet Navy, Admiral Gorshkov, reported that the Japanese "significantly degraded" the Russian fleet in its 1904 attack by sinking one battleship out of seven, i.e., 14-15 percent attrition.⁸⁶ This is at the upper limit of the range reported for "degrading" (10-15 percent).

All this would suggest a planning objective of 10-15 percent attrition against ICBMs, SSBNs and strategic bombers in their bases; little additional attrition against SSBNs at sea; 30-70 percent attrition against attack carriers in the mid-'60s, dropping to 10-15 percent at the beginning of the war in the '70s; 30 percent attrition against penetrating missiles and bombers; and 10-15 percent effectiveness in overcoming nuclear effects through civil defense. While the attrition claimed for anti-missile defense seems unrealistically high, the calculation against SSBNs, SLBMs and bombers in their bases is conservative. It apparently assumes that U.S. ICBMs and planes will be launched on warning;⁸⁷ that it is mainly such systems down for maintenance which will be caught in their silos and bases;⁸⁸ and that the SSBN attrition burden will be basically on those vessels in overhaul that cannot get underway in a period of threat.⁸⁹ As one naval writer reports:

In the opinion of foreign military specialists, the destruction of submarines directly at their base sites, though of

great importance, will still not lead to a significant reduction in the undersea threat. They cite in this connection the experience of World War II, stressing that a total of only around eight percent of the number of submarines lost were destroyed in their bases.⁹⁰

In the abstract, it is hard to see how Moscow could have been satisfied with its single option. There was criticism of Mr. Dulles' strategy of inflexible escalation in the U.S. even when Washington had unilateral advantages in all-out war; and the Soviets in the mid-60s enjoyed no such unilateral advantages. At best the costs of unlimited war could only be justified by defensive objectives and then not by all defensive objectives. While the Soviets often gave the impression of their option as an all-purpose tool in coercive diplomacy, close scrutiny reveals the only political setting for war ever discussed was a threat to the survivability of the socialist commonwealth. Up to the mid-60s any war in which the USSR participated would be nothing less than a war to the death between the two social systems.⁹¹ But that perspective would soon change.

Soviet Local-War Doctrine

The categorical presentation of the Soviet option in the first half of the 60s has had unfortunate long-term effects. This was Moscow's maiden voyage into the nuclear era, and its presuppositions have been seared into our consciousness. Some found

stated Soviet intentions incredible, assumed there had to be unstated intentions, and have discounted Soviet declaratory policy forever afterward. Others saw truth in Soviet statements, but concluded the means and ends implied were the result of a free and unconstrained choice. On the one hand, Moscow was supposed to have some predilection for a bloody-minded strategy, and would never limit its means. On the other hand, its concern was allegedly only for vital interests, and it would never stir for interests less than vital.

There was warrant for these sweeping generalizations only in the current doctrinal context; there was none in history. As Garthoff points out, the limited conflict fought for limited ends is the classic type of Soviet venture.⁹² Since the period of civil war and intervention, the USSR has fought only one all-out war "in defense of the socialist fatherland," and this war was forced upon them; Stalin's unlimited ends and means were occasioned by Hitler's. All the other actions taken, aggressive or defensive, were in the name of "state interests," with the level of effort carefully tailored to restricted objectives.⁹³

We emphasize once more: Soviet doctrine, which is avowedly geared to practical action, is no guide to long-range intentions. Admiral Gorshkov himself has informed us that in the mid-50s, precisely when the Soviets began to say "the era of local wars is over,"⁹⁴ Moscow initiated a long-term program to develop capabili-

ties, not only for nuclear (world) wars, but also for conventional (local) wars and the "protection of state interests" abroad in peacetime. Until these capabilities had matured, the Russians would have to exercise restraint. By the mid-60s the period of patient waiting was over: the Soviets had acquired a long-range airlift capability for airborne action against land, and an anti-carrier warfare (ACW) capability for credibility at sea; a naval presence had been established as well in the Mediterranean. The timing of diplomatic preparations was also noteworthy; in 1965 the Yugoslavs agreed to grant overflight rights for Soviet military transports, perhaps indispensable if the Soviets were going to make credible commitments to clients for rapid action. The only missing ingredient was a local-war doctrine, as the underpinning for a Third World diplomacy of force.⁹⁵

This came at the end of 1965, precisely when we have come to expect a regular doctrinal review -- on the eve of the next five-year plan. Before the promulgation of the new doctrine, the Soviets had insisted that any war (even a local war) involving both superpowers would "inevitably" escalate to the all-out level. The catch was in the conditions for superpower involvement; in their typically oblique manner, the Soviets indicated they would become involved only if "fundamental interests" were at stake. Since these are scarce in the Third World, the USSR in effect had no conventional local-war doctrine and no diplomacy of force in the

forward area, and in fact did not practice it there.⁹⁶ In the first half of the 60s, all politico-military successes in the Third World were attributed to the "nuclear-missile might of the Soviet Union"⁹⁷ and to "means for the military defense of the USSR,"⁹⁸ never to Soviet conventional capabilities for defending clients in the forward area.

The doctrinal period 1966-70 witnessed a sea change in this respect. Whereas before it had been stressed that a local war involving the two superpowers would "inevitably" escalate, now there was only the "threat" of escalation or the "possibility" of escalation; inevitability was the rule only when the "vital interests of the superpowers" were at stake, which is not often the case in the Third World.⁹⁹ According to the line of the day,

The armed forces of the USSR and the socialist countries are confronted with an important task -- to be in readiness for repelling the aggression of imperialist states, not only in a nuclear-missile war, but also in local wars with the use of conventional means of combat.¹⁰⁰

Once armed with the credibility of a conventional local-war doctrine, the USSR could now go into the forward area and practice a diplomacy of force. The June War of 1967 was the first occasion they had for practicing it in that doctrinal period; they seized on the occasion and have been in business ever since.

Our whole experience with the Soviet local-war doctrine is valuable, not only in itself, but for two other reasons. First, it established the Soviet communications pattern in revealing the

existence of a new option that would serve us in good stead in identifying future options. The revelation is normally oblique rather than straightforward. Soviet authors are reluctant to assert positively that action can remain at the level of the new option, despite the high risk of escalation; rather they imply that it can through reducing their estimate of the certainty of escalation, from "inevitable" to "possible," "probable," etc. Of course, the statement that a course of action might escalate automatically implies that it might not as well, but the point is that this implication must be drawn by the reader; it will rarely be proffered by a Soviet military author in the same context.

Second, the introduction of the local-war doctrine was followed, not only by the actual practice of coercive diplomacy, but by limited Soviet military intervention in the Third World; this enabled us to test our interpretation of Soviet statements and their truth value, an opportunity that we hope will never be made available to us in the case of other Soviet options. In the case of the local-war doctrine, we have seen the Soviets change their statements; we have interpreted these changes a certain way; and the Soviets followed with action that tended to confirm that interpretation. This gives us greater confidence that our analytical approach has some validity and that stated Soviet intentions, correctly interpreted, reflect real intentions.

The Soviet Limited Intercontinental Option

The Soviets now had two options; would they try for three? In the first half of the 70s, the attention of the Western defense community was arrested by two developments. One was the introduction of the Delta-class SSBN armed with the SS-N-8 missile; its range permits hitting the U.S. from the relative safety of home waters. The other was the introduction of multiple independently targetable reentry vehicles (MIRVs); now the first strike was, in principle, stronger than the second strike. The two developments together gave the USSR a potential for conducting initial strikes against military targets, while withholding a countervalue SLBM reserve for intrawar deterrence of U.S. strikes against Soviet cities.

Did Soviet intentions match their capabilities? In my view, the intentions are spread all over the literature, the first evidence appearing where we have learned to expect it -- at the turn of 1970-71, on the eve of a new five-year plan. I have previously published a mass of material on this, mainly from the naval side. Afterwards, there were justified complaints that I had neglected the non-naval side, and I have taken these complaints to heart in the present essay.

There is an almost universal opinion in the U.S. analytical community, even from those who believe Soviet strategy has changed, that Moscow has nevertheless not changed its declaratory

stance on limited nuclear options. However, I myself find three significant differences between Soviet statements of the 60s and those of the 70s.

First, in the 60s the Soviets on occasion employed the convenient technique of avoiding U.S. statements altogether and simply attributing to Washington the intention of an all-out attack. In the 70s, however, Washington has been credited with the intention of a disarming attack.

Second, in the 60s whenever the Soviets did deign to deal with stated U.S. limited intentions, these were characterized as dezinformatsiya, camouflage for Washington's real intention of an all-out attack.¹⁰¹ In the 70s, by contrast, American counterforce declarations, real and alleged, are characterized as "not just words."¹⁰² Our concepts may be "groundless" and our strategy shot through with "illusions," but they are not outright lies. Moscow even acknowledges the "realism" of a U.S. counterforce strategy from the technical military standpoint; its lack of realism appears in the political sphere, in running against the strong current of detente.¹⁰³

Third, in resorting to an "objectivist" approach in the 60s, Moscow argued that, regardless of subjective intentions, the war would nevertheless "inevitably" escalate. In the 70s, however, Moscow has introduced uncertainty into the escalation estimate. This, of course, was the inferential technique previously employed in promulgating the Soviet local-war doctrine, and our attention

is pricked on that account alone. However, in a few cases Soviet writers have gone beyond the oblique technique and asserted more positively that a world nuclear war can be limited. They do not, of course, go to the other extreme and assert the inevitability of limits, only the possibility. Thus, Moscow has not abandoned the all-out option; it continues to exist alongside the new one. As someone has put it to me, Moscow does not have a new house; its old one has simply been enlarged by another room.

The first sign of a possible new orientation appeared in General-Major Sergeev's introduction to a work signed off to the press in October 1970. According to Sergeev, even the imperialists do not deny "the possibility" -- not the inevitability, but the possibility -- of a large-scale conventional war, especially one involving the European theater, escalating into a general war with the "unlimited use" of nuclear weapons.¹⁰⁴ This way of treating the problem, of course, equally left open the possibility that the war might either remain at the conventional level or escalate to some level short of an all-out exchange. Subsequent Soviet statements resolved all doubts as to the alternative which was not meant. A war between the coalitions, it was said on all sides up to the end of 1975, would "inevitably" escalate into a "world nuclear war" or, what seems to amount to the same thing to the Soviets, a "general nuclear war."¹⁰⁵ However, in insisting on

the inevitability of escalation to this level, Soviet spokesmen in each case neglected to tell us whether there would or would not be an unlimited use of nuclear weapons.¹⁰⁶ The Soviets do acknowledge that the distinction needs to be made; NATO doctrines, they charge, "legitimize world nuclear war with the limited and unlimited use of means of mass destruction."¹⁰⁷

It seems reasonably clear that, in the doctrinal period 1971-75, uncertainty was being introduced, not as to the geographical scope of military action (it would "inevitably" be worldwide) and not as to the nature of the weaponry employed ("inevitably" nuclear), but only as to whether the war would be all-out. As Colonel Taran put it in 1971, "If a world war is initiated, it might cover...not only the zone of military action but also essentially the entire deep rear of the belligerent sides," with the object of "not only smashing the opponent's armed forces, but destroying and eliminating his administrative-political and military-industrial centers...."¹⁰⁸ General-Major Voznenko sounded much the same note of uncertainty in 1973: "a world war...might be nuclear with the use by the belligerents of the entire might of the nuclear-missile weapons available to them."¹⁰⁹ Since the standard line of the period held that a world war was bound to be nuclear, the uncertainty introduced by "might" could only apply to the use of the "entire might" of the belligerents' nuclear-missile weapons.

These unprecedented qualifications of inevitable escalation all appeared before Mr. Schlesinger, alarmed by Soviet MIRV tests in the summer of 1973, responded with his own limited-nuclear option the following year. The Soviet reaction was abruptly negative, and Western observers have tended to confuse the rejection of an American counterforce strategy, which is par for the course, with the rejection of a counterforce strategy for themselves. In fact, in their threats of reprisal Soviet spokesmen have sounded the same notes of uncertainty about escalation as before, with the implication that Moscow's response might be in kind, possibly avoiding escalation. According to Colonel Semeyko, "a nuclear war begun with a limited exchange of strikes could reach an unlimited scale significantly quicker than a war with the use of conventional means."¹¹⁰ According to General-Lieutenant Mil'shteyn, a ballistic-missile attack on military targets...could easily escalate."¹¹¹ General-Major Simonyan warns that, "inherent in the use of strategic nuclear weapons, even in limited numbers and against 'selected targets,' is the real threat of expansion and escalation."¹¹² According to the current Minister of Defense, Marshal Ustinov,

Recently discussions have revived in the U.S. on the expediency of delivering a "preventive strike under certain circumstances" by strategic means against military targets on the territory of the Soviet Union. It is not very clear how ...responsible people can ever contemplate such strikes, since it is perfectly obvious that a powerful counterstrike [kontrudar] will inevitably follow behind them.¹¹³

If I am not mistaken, the word "counterstrike" connotes more a symmetrical response in kind than a threat of escalation; in any event, the latter can hardly be the preferred inference.

However, the Soviet treatment that is most frequently cited to document Moscow's belief that limited strategic war is "impossible" appeared in an article by Mil'shteyn and Semeyko in late 1974. Theirs is, indeed, the most pessimistic estimate I have seen on the chances of limiting an intercontinental exchange, but what, after all, were the precise odds they gave in favor of escalation? According to the two authors, even if the war "begins with the delivery of strikes on a few selected military targets, such a conflict...will most likely [skoree vsego] escalate quickly to general war...."¹¹⁴ "Might" escalate, "could easily" escalate, "real threat" of escalating, "most likely" escalate -- what responsible official in the West would appraise the odds any differently? And, indeed, they do not; for every Soviet estimate there is an American counterpart. The Soviets say there is a possibility of escalation -- but so did Mr. Schlesinger.¹¹⁵ The Soviets even say the war will "most likely" escalate quickly -- but so does Mr. Harold Brown, employing those exact words.¹¹⁶ As Katasonov has recently stated, "U.S. military-policy leaders themselves recognize the danger of any plans for the limited use of nuclear weapons...."¹¹⁷ Danger, you bet; certainty of an unacceptable

catastrophe, no -- and that seems to be the appraisal on the Soviet side, too.

To be sure, there is a difference between typical Soviet and American statements. American officials, in emphasizing the high risks of escalation, at the very same time make explicit what is only implicit in Soviet estimates -- that an intercontinental exchange can be limited. However, I do know of two occasions when Soviet writers have spoken positively and unequivocally to that effect. One is a 1972 statement by Colonel Shirman, which I will discuss in another context; the other is by Colonel Rybkin in 1973.

Rybkin begins with a hymn of praise to assured destruction in deterring all-out war, and there cannot be the slightest doubt from the way he expresses himself that his understanding of deterrence through assured destruction is precisely the same as any Western defense intellectual's; there is no implication of war-waging. However, according to Rybkin, an assured-destruction capability "is not to be regarded as a condition or a means for preventing all wars in general." It cannot substitute for indigenous forces in compelling imperialism to relax its grip on the Third World; hence, there will have to be "civil and national-liberation wars, and wars in defense of the sovereignty of peoples." Nor can

it prevent another type of war, which he refers to with some evasiveness as "local wars between states." A "grave feature" of these wars is "the ever present threat of their transformation into limited-nuclear and then into world nuclear wars." To prevent them, the USSR has to be prepared to "defeat" the aggressor, not in a conventional but a "nuclear war," by which he surely means a world nuclear war.¹¹⁸

So far Rybkin's discussion seems to be nothing more than a restatement of what we have interpreted to be the Soviet grand strategy of the 60s: deterrence of an all-out attack through the threat of unacceptable damage; prevention of a conventional attack by the threat of a war-fighting escalation. However, there is one significant difference. The escalation threat of the 60s was to the all-out level, whereas with Rybkin the escalation distance is less by one rung.

Arms have reached the point where their use in war threatens the lives of tens and hundreds of millions of people. Of course, in practice, for various reasons, all the available nuclear weapons might not be used in the course of the war....¹¹⁹

When I read this passage, I immediately got the point about all the weapons not necessarily being used, but it took several readings to be struck with an explanation for the threat to "tens" and "hundreds" of millions of people; evidently, we were being given a choice between counterforce and countervalue casualties. The standard Soviet formula of the 60s -- and Rybkin knows this line very well, having quoted Brezhnev on it¹²⁰ -- focused entire-

ly on the threat to "hundreds of millions of people,"¹²¹ which is just about what you would expect from a countervalue exchange. But now we seem to be given an alternative -- "tens" of millions of people -- which is what the Soviets tell us you can expect from a counterforce exchange. According to Colonel Surikov, conveniently citing "Western specialists" as his authority, "even if an exchange of thermonuclear strikes were to be aimed only at military targets, this would involve the death of tens of millions of people on each side."¹²² Thus, Colonel Rybkin not only directly and straightforwardly avers that an intercontinental exchange can be limited, but obliquely suggests that the limits are on countervalue, not counterforce.

That the old guidelines have been altered is nowhere clearer than in Soviet tampering with their ancient formula on "the course and outcome of war." The line of the 60s, we will remember, had held that the "initial period" of the war, and specifically the strikes by the Strategic Missile Troops in the initial period, would have a "decisive" influence on both the course of the war (the way it develops) and its outcome (the attainment of the war's ultimate strategic and especially its political objectives). The Soviets have always contended that it is the correlation of purely military, military-economic and morale potentials that decide the fate of war,¹²³ and by simultaneously targeting all three poten-

tials -- the armed forces, the war economy and the population -- in the initial massive nuclear strikes, the course and outcome of the whole war could be decided in one fell swoop. As General-Colonel Lomov put it in 1964, "with the unlimited use of nuclear-missile weapons, the results of the armed struggle in the initial period can predetermine not only the course but also the outcome of the war."¹²⁴ In moving into the doctrinal periods of the 70s, however, Soviet spokesmen begin to tell us simply that the use of modern means of destruction "poses anew" the problem of the initial period;¹²⁵ that "the results of the first nuclear strikes will be exceptionally great;"¹²⁶ that "the first operations can have a decisive influence on the course of the war as a whole," without mentioning the outcome;¹²⁷ and that only "the course of the armed struggle will depend mainly" on the potential and the readiness of the Strategic Missile Troops.¹²⁸

It is different with the Navy. Previously, even after the introduction of the Yankee-class SSBN, the Navy considered alone, and not lumped together with the strategic forces of other branches, had been characterized as capable only of a "great," "serious" or "enormous" influence on the course and outcome of the war as a whole.¹²⁹ With the acquisition of the Delta-class SSBN, however, its influence became potentially "decisive."

Atomic energy and nuclear weapons, in combination with missiles for various purposes as well as radioelectronic means, have imparted new qualities to the fleet and advanced

it into the ranks of strategic forces, capable of decisively influencing the course and outcome, not only of major operations in vast theaters of military action, but also of the war as a whole.¹³⁰

Thus, the initial period of the war, and specifically the strikes of the Strategic Missile Troops that would have to take place in the initial period ("shoot them or lose them"), can now predetermine only the course of the war, not its outcome; the Navy, on the other hand, can decisively affect the outcome as well as the course.

This suggests two interesting lines of thought. If the Strategic Missile Troops no longer predetermine the outcome of the war, this cannot be the result of any loss of potential. It must be due to some change in their targeting set; they must not be hitting some objectives that they were before. On the other hand, the elevation of the Navy into the ranks of independently "decisive" forces is no doubt intimately connected with an increase in its potential. However, the Navy's ability to decide the outcome of war can in no way be attributed to any use made of this potential in the initial period, since the initial period is no longer decisive for the war's outcome. And, indeed, if there is one lesson Soviet naval writers of the 70s have drawn from history, it is the value of fleets in the later phases of war and in war termination for securing the "political objectives" that are associated with the war's outcome.¹³¹

Let us pursue these two lines of thought a little further -- first, the question of a new option in ICBM targeting. In the 60s the Soviets made no bones about it. Targeting by the Strategic Missile Troops was simultaneously counterforce and countervalue: the opponent's means of nuclear attack; concentrations of his armed forces; "state and military control points;" "military-economic centers;" and so forth. There were no linguistic ambiguities whatsoever. In a prestigious work signed off to the press in November 1970 and published in 1971, however, the authors presented a long list of strictly counterforce targets for the Missile Troops' retaliatory strike and then added the following item: "points for control over the armed forces and over the country's administrative-economic activity."¹³² All of the old terminology is there but recombined in such a way as to be virtually meaningless, a point which the trusting reader was certain to miss. We have the feeling of an attempt at flim-flammy, unless the Soviets have some notion of targeting an American economic elite. And how and where would that elite be embodied and concentrated? In a War Production Board in Washington? Wall Street in its entirety? The boardroom of General Motors? In any event, no strikes were specified for Western military-industrial facilities, only for their "control points."

In another work signed off to the press in the spring of 1971, General-Major Anureev had this to say:

It is felt that the initial period of a new world war will be extremely violent and destructive.

American military specialists believe that in this period maximum destruction should be inflicted on the enemy's strategic nuclear forces.

At the same time, aggressors across the ocean realize ever more clearly that, if war is unleashed against the Soviet Union and the other socialist countries, they will not succeed in using their own armed forces with impunity.¹³³

Thus, the only strikes mentioned for the initial period are counterforce on both sides. I do not recall any similar restricted treatments in the 1960s.

Our attention is further arrested by a work of Minister of Defense Grechko's published in 1971, which contained two different targeting directives. One was a definition of combat readiness which dictated a readiness for the delivery of only counterforce strikes. The other was a mixed counterforce-countervalue target list for the Strategic Missile Troops that was typical of the 1960s.¹³⁴ The first directive was subsequently hailed as a new definition of combat readiness enjoined by the XXIV Party Congress earlier that year,¹³⁵ and on that account alone is unlikely to be a mistake. However, since most of the Grechko book was probably written in 1970, when a different doctrinal inspiration prevailed, it is conceivable that the mixed counterforce-countervalue target list was penned at that time and overlooked in the revision and editing. There are reasons to reject this hypothesis and to support it. In favor of rejection is the fact that this directive,

as well as the purely counterforce directive, were both subsequently endorsed by knowledgeable people;¹³⁶ Grechko, therefore, may have been deliberately giving options. On the other hand, it is perhaps significant that, in a later 1972 article, Grechko gave another targeting list for land-based strategic missiles which, because of the basic similarity in wording, literally cries out for comparison with the 1971 mixed-targeting list. Category for category the targets were the same, with one exception -- the 1972 list left out "war-industry targets."¹³⁷ Did he mean by this to correct his earlier list? And another thought occurs: even if the Missile Troops continue to be assigned countervalue targets, does that necessarily mean their effort along that line is all-out? Perhaps it is best to sum up the evidence on the ICBM side of the discussion by saying that it is more informative on Soviet restraint than on the precise character and degree of that restraint.

What about the Navy side? With respect to the timing of the Navy's action, as we have seen, it cannot take place in the initial period and have a decisive impact on the outcome of the war, because the initial period no longer predetermines the outcome. With respect to the main naval means for affecting both the course and outcome, Soviet spokesmen are unequivocal: they are SSBNs conducting "action against the shore."¹³⁸ As to the geographical

focus of SLBM strikes affecting the course and outcome, it is primarily "targets in the depth of enemy territory,"¹³⁹ as opposed to targets in the theaters of military action, a distinction which the Soviets consider crucial. As to the character of these strikes, they are "aimed at crushing an opponent's military-economic potential, which can exert a direct influence on the course and even the outcome of war."¹⁴⁰ Crushing (or undermining) an opponent's military-economic potential, i.e., the potential of his economy for producing military goods, is Soviet terminology for countervalue action.

However, the most intriguing information conveyed by the Soviets is that weapons do not have to be used at all in order to influence the war's outcome; this influence can be exerted through intrawar deterrence. The first to make the point unequivocally was not a naval spokesman but Colonel Shirman, writing in 1972.

In the opinion of bourgeois ideologues, a nuclear war...will deprive the masses of any possibility of affecting its outcome and can have only one result -- the physical extermination of mankind.

Of course, one should not underestimate the danger involved in the use of nuclear weapons....

But...one ought not overestimate them either....It is precisely this tack that lies behind the concept of nuclear fatalism. This concept is founded...on the idea that, in nuclear war, there are no limitations at all on the use of the latest weapons....

Shirman has "serious objections" to this premise.

Nuclear weapons are an instrument of policy like all other means of armed combat....The very nature of these weapons

presupposes an especially strict control over their development and use as instruments of policy. And a serious deterrent effect is exerted on the policy of the imperialist states by the popular masses, in the first place the peoples of the socialist countries that have at their disposal modern means for waging the armed struggle, including the nuclear weapons in the possession of the USSR....

Consequently, the availability of technical means making possible the extermination of hundreds of millions of people [countervalue casualties] does not at all mean the inevitability of mankind's extinction in the event a nuclear war arises. The concept of nuclear fatalism therefore is faulty to the core, since it ignores a whole host of factors affecting the course and outcome of war....¹⁴¹

The only remaining problem is to identify the branch of service of these "masses" who, with weapons at the ready but undischarged, can determine the outcome of war. The natural candidates are the lads in nautical uniform aboard SSBNs; and, indeed, that is what Admiral Gorshkov has been trying to tell us now for many years, if in a slightly more oblique manner than Colonel Shirman. We will remember that, in the 1960s, the classical "fleet-in-being" concept of the great battleship powers of World War I had been derided and the "doctrine of withholding forces" scorned for its "attempts to protect forces for the future, while renouncing their correct use in the present,"¹⁴² all of which "naturally reduced the influence of the armed struggle at sea on the course and outcome of the war as a whole."¹⁴³ Admiral Gorshkov, in treating

this theme in 1972, acknowledged that both Britain and Germany did have a doctrine of withholding their main forces; however, he insisted it was "insufficiently objective" to conclude that the reflection of this doctrine in British behavior at the Battle of Jutland meant that the engagement "had no influence on the course of the armed struggle." Although there was no decisive action, by helping keep the war in its old channels "the Battle of Jutland determined the unaltered character of the further course of this protracted war."¹⁴⁴

However, a mere readiness to use one's weapons is capable of influencing, not only the course of the war as at Jutland, but also its outcome.

History provides examples of how fleets, by their presence alone or even simply by virtue of their existence in the possession of one of the opposing sides, have had a definite and at times quite substantial influence on the outcome of the armed struggle in ground theaters, if only by appearing on the scene as a potential threat to further continue the war or to change its character in favor of the state with the stronger fleet.¹⁴⁵

All this material taken together has the familiar ring of a countervalue withholding strategy, for intrawar deterrence, intrawar bargaining, and politico-military impact in war termination. At one point, in reviewing the sorry tsarist record of naval development in the nineteenth century, Admiral Gorshkov generalized that, "in the closing moments of war [not the early but the closing moments], when the seapower on which policy could be grounded was especially needed, the Russian Navy has often proved not

strong enough to make the enemy and the states supporting him agree to accept the peace terms indispensable for Russia." The politico-military value of fleets in war termination was stressed, not only in connection with the Russo-Turkish War of 1877-78 as in this case, but also in connection with the Crimean War of the mid-1850s, the Sino-Japanese War of 1894-95 and the Russo-Japanese War of 1904-05. According to Gorshkov, the importance of navies in the Crimean War "was determined by the extent to which their presence in a given theater could be used by diplomats of the opposing side to support their positions at the peace talks;" and it was specifically said to be the unfavorable correlation of available naval forces at that time, and thus presumably not the balance struck in war-fighting up to that point, that compelled Moscow to accept the onerous terms of the Paris Peace Treaty.¹⁴⁶ The same conclusion was drawn from the series of treaties terminating World War I: "All of them together...reflected the correlation of imperialist forces at the time the war ended...."¹⁴⁷

Of course, if SSBNs are to be withheld for war termination, then they (and the naval forces supporting them) have to be able to survive in a nuclear environment. Hence, it is no great surprise to find naval forces in general extolled as having "greater stability against nuclear-weapons effects" than land-based forces¹⁴⁸ or submarines in particular praised for their "great

survivability," which in World War II permitted them to present a threat "right up to the very last day of the war."¹⁴⁹ In the late 60s by contrast, when SSBNs were expected to exhaust their potential in the initial period, the emphasis was on the ability of naval strike forces to survive "at the beginning of the war."¹⁵⁰ A selective use of statistics was found useful to "validate" both points of view. Statistics paraded in the 1960s showed relatively low initial submarine losses in previous wars but with the losses escalating over time and peaking at the end;¹⁵¹ comparable statistics of the 1970s tended to show increasing numbers of surviving submarines over time, also peaking, we were pointedly told, "at the end of the war."¹⁵² One set of figures was no doubt as good as the other; it all depended on the impression the sophisticated and attentive reader was supposed to carry away.

Did the withholding strategy change Soviet views on the war's duration? In the late 1960s General-Major Zemskov explained "the tendency to a sharp reduction in duration" of nuclear wars "by the enormous damage to materiel and morale inflicted by the belligerent states in the very first hours, and also by the fact that, during the war, neither side will be able to restore its armed forces in a systematic way because of the great losses in manpower and means of production."¹⁵³ Of course, in the 1970s the Soviets

still held on to their all-out option and, specifically and pointedly on that account, held on to the perspective of a "war of brief duration," terminating in a single campaign.¹⁵⁴ However, that the Soviets now had another option and another perspective was first indicated in an article by Captain First Rank Balev in the General Staff journal in 1971; the article was later hailed by the editors of the journal for its great role in forming "common views" in the officer corps of the armed forces,¹⁵⁵ a tipoff that it enjoyed the official status of a "concrete expression of doctrine."¹⁵⁶

Balev took his predecessors¹⁵⁷ to task for their "firm assumption that a general nuclear-missile war...will come to an end in an extremely short period of time...." This was predicated on the war being all-out from the start, in which case "not only major groupings of armed forces will disappear from the face of the earth but also whole states, while at the same time millions of consumers...and thousands of enterprises...will vanish...." Balev advances the contrary view that even a nuclear war "can be prolonged an appreciable amount of time." He agrees that enormous stockpiles of nuclear weapons have been accumulated on both sides, but argues in rebuttal that these "can be used by them at any moment,"¹⁵⁸ as opposed presumably to their obligatory discharge at the onset of hostilities.

Despite the deliberately opaque quality of Balev's discussion, there can be little doubt that he was linking the longer duration of a nuclear war with limitations on nuclear weapons use. Indeed, a close comparison of his remarks with the full context of Colonel Shirman's later attack on "nuclear fatalism" reveals that every point made by the latter was modeled directly on Balev,¹⁵⁹ though Shirman's plagiarism at least had the virtue of avoiding the worst of his model's circumlocutions. Even the one straightforward statement by Balev on limiting weapons of mass destruction was expressed as a lesson from history and displaced from the general- to the local-war context.

During World War II all the belligerent countries had at their disposal a significant number of chemical and even bacteriological weapons. However, in spite of the bitter character of the war and the highly decisive objectives of the parties, they were never used on a mass scale.¹⁶⁰

To be sure, even the strategy of the 60s had envisaged protracted nuclear war as one scenario "not to be excluded." However, this had been based on a "broken-back" concept of war, with conventional action dominating the later stages, whereas the current scenario apparently calls for nuclear action throughout, once the war escalates to that level. Typically hiding behind the views of "American military leaders," Air Marshal Zimin stated in this connection:

it is impossible to take out all targets...in a single strike, even if surprise is achieved. Therefore, steps are being taken to create forces for succeeding strikes [povtor-nye udary], which should ensure final victory. On the

strength of this, the conclusion is drawn that a future war may have a lengthy, protracted character....¹⁶¹

It is not surprising, then, that alongside all-out wars ending with a single campaign, we also find allusions in the 70s to a nuclear war extending over several campaigns.¹⁶²

Not unexpectedly, too, countervalue withholding and its associated perspective of a longer war seem to have been accompanied by a boost in requirements for strategic reserves of all kinds of forces. This new line first cropped up in the pages of the General Staff journal in 1971,¹⁶³ then quickly spread to the unrestricted press. Although cast as historical analysis, the new material was commended by a reviewer for bringing principles to light "that have not lost their relevance in the present context."¹⁶⁴

The ostensible object-lesson of the discussion was the "adventurism" of the Axis "doctrine of all-out war" and the Axis "strategy of a Blitzkrieg of brief duration" [skorotechnaya molnienosnaya voyna]. However, we cannot fail to blush on Moscow's behalf for the similarities of this doctrine and strategy, as described, with Soviet counterparts of the 60s. The hubris of the Germans allegedly lay in counting on operations of the initial period to foreordain "the outcome of the war" as well as its course. "This involved the concentration of the overwhelming mass of their armed forces in the first strategic echelon and the allocation of quite limited forces to the strategic reserve," with the first

massive attacks ambitiously aimed at both counterforce and counter-value objectives, i.e., the defeat of major enemy concentrations "simultaneously" with the seizure of "economic and administrative-political centers." The mistake of the Allies in the war was different. Whereas the Axis overestimated the potential of the initial period for influencing the outcome of the war, the Allies went to the other extreme and "underestimated the growing role in war of its initial period...for the course of the war;" they "planned the greatest strain on their capacities, not at the beginning of the war, but at its end...." The Axis maintained few strategic reserves; the armed forces of the Allies were practically nothing but a strategic reserve for influencing the later stages and outcome of the war.¹⁶⁵

The USSR alone took a correct, balanced approach, defective as it might have been in detail. Unlike the Allies, even before the German attack "the political and military leaders of the Soviet Union recognized that the results of the initial operations would have an enormous influence on the course of the war...." On the other hand, unlike the Axis, they rejected on Frunze's authority the notion that the war's outcome -- the achievement of the "war's objectives" -- could be decided by a "single strike" at the start of hostilities. "The war would assume the character of a prolonged and brutal contest." Guided by this insight in fighting World War II, the USSR skillfully combined spirited action in the first operations with the careful husbanding of strategic reserves

for later action. The actual commitment of these reserves in mid-July 1941 was described, for the first time that I am aware of in Soviet historiography, as the real turning of the tide.¹⁶⁶

Having acquired another option for its strategy of escalation, it is not surprising that, as Garthoff points out, Moscow in the 1970s has been willing to lock up its all-out option in the restricting embrace of mutual assured destruction.¹⁶⁷ There is evidence of this in the literature;¹⁶⁸ recently MAD even seems to have captured the patronage of the Central Committee journal Kommunist,¹⁶⁹ which, moreover, appears inclined to treat all-out war, not as the obedient servant of absolute policy, but as "absolute war" that has escaped from the control of policy and become an end-in-itself.¹⁷⁰ The danger I think we have to avoid in all this is to assume the changes are the result of ideological accommodation. There may be more or less such accommodation in Moscow in the 70s than in the 60s, but the argument either way is not to be decided by Soviet acceptance or rejection of MAD. It was not ideological divergence that led Moscow to reject MAD in the 60s, and it is not ideological convergence that has brought about its apparent acceptance today. We would argue rather that both were determined by a logic of escalation and response that holds both East and West in thrall and takes its point of departure in perceptions of relative capabilities. It was the strength of multiple options that led Mr. McNamara to MAD after 1962; he could then

relegate all-out war to its only practicable sphere -- retaliation for an all-out attack. By that same yardstick we cannot avoid imputing to Moscow today a new access of strength in its grand strategy.

No longer is the USSR restricted to a single set of wartime political objectives. In the first half of the 60s, with only the all-out nuclear option, the Soviet Union entertained the only wartime goals that could justify the terrible costs of that option -- a defensive war against the class enemy who wanted to extinguish the Soviet system and enslave the Soviet people. Today, using the mirror-imaging technique, they put into the mouth of Western spokesmen views that probably reflect the greater range of their own objectives and options. According to Colonel Rybkin, "The policy and military ideology of imperialist countries now look on an all-out world war against the USSR as an extreme step...."¹⁷¹ According to Petrovskiy,

Some American political thinkers, even though they acknowledge that all-out nuclear-missile war...cannot be looked on ...as a 'rational' means for achieving political objectives, at the same time grant the possibility of such a war as an 'act of desperation' that has to be fallen back on as a 'last resort,' when they figure a threat has been created to the national existence itself....

Otherwise, says Petrovskiy, they would prefer to wage another type of conflict:

"limited strategic war," understood as an exchange of strategic nuclear strikes on "point" military targets (airfields, troop concentrations, missile silos). It is assumed that, after the missile "shootout" against such targets in the pos-

session of both powers, there still remains a possibility of entering on negotiations before reducing the matter to a mutual launching of intercontinental ballistic missiles (ICBMs).¹⁷²

It is difficult to imagine the attribution of such views to Americans in the 60s, without simultaneously denouncing the views as dezinformatsiya. The implication is that the intercontinental warfare envisaged by Moscow today is not necessarily an "uncompromising struggle" over non-negotiable issues. Of course, the all-out option has not been discarded and, where the use of that option is the context, Moscow still takes its stand on unlimited wartime political objectives.¹⁷³ But where the discussion seems to turn on countervalue restraint, allusions on the political side drift to intrawar bargaining; an "honorable peace," on occasion, in lieu of victory; a threat to "continue the fight" if an opponent's demands are unreasonable;¹⁷⁴ and the determination of peace terms by the available correlation of forces.

The Soviet Eurostrategic Option

In previous five-year plans the focus of innovation had been on intercontinental strike options; in the five-year plan 1976-80, however, it has shifted to theater nuclear weapons. Nuclear artillery, with its greater accuracies for close battlefield support, was introduced for the first time operationally; and replacements for each of the older "tactical" and "operational-tac-

tical" missile systems (Frog, Scud, Scaleboard) were either in process of deployment or under development. However, the greatest concern was aroused over Eurostrategic innovations: the Backfire bomber, said to be somewhat more capable than the comparable U.S. FB-111; and especially the SS-20 intermediate-range ballistic missile (IRBM), whose improved accuracy, lower yields, mobility and reload capability suggests the potential for an independent sustained Eurostrategic counterforce option.¹⁷⁵ There was a related operational innovation: the rebasing of six Golf-II ballistic missile submarines in 1976 from the Northern to the Baltic Fleet. The range of their missiles (1,200 km.)¹⁷⁶ and the timing of their transfer, coinciding with the emergence of other capabilities for a Eurostrategic option, suggests an intended decoupling of the Delta-Yankee countervalue sanctuary in the Barents Sea from the operational area of sea-based Eurostrategic forces assigned to hit military targets; one would think this decoupling a prerequisite for using the Golfs as part of any independent Eurostrategic option. As Trevorton remarks, all these changes "suggest that the Soviets may take the prospect of nuclear war-fighting in the European theater more seriously than had been thought;" the SS-20 in particular cannot be easily explained, as might the older SS-4 and SS-5 missile systems, as merely a technical way station en route to an intercontinental exchange.¹⁷⁷

I think we had better believe it. From the end of 1975 -- again precisely when we have come to expect the regular five-year doctrinal review -- evidence has begun to accumulate of Soviet Eurostrategic intentions, to put alongside their emerging capabilities. As usual, the intentions are not presented straightforwardly and as a well articulated whole, but esoterically and dribbled out in bits and pieces which the reader has to put together for himself. The first bit of information was released in a work by Admiral Gorshkov, signed off to the press in November 1975 and authenticated by both the author and his reviewers as a "concrete expression of doctrine," i.e., a military-scientific work which "proceeds from doctrine" and "validates" it.¹⁷⁸

The formula Gorshkov tampered with is one of the longest-lived in the Soviet Union. It continued to be repeated in the first half of the 70s with exactly the same content expressed by Sokolovskiy in the 60s: "if war is unleashed by U.S. aggressive circles, it will at once be transferred to the territory of the United States of America...."¹⁷⁹ Now Gorshkov was to give a different version of this formula, and there can be little doubt he meant what he said; he not only repeated it word for word in the second edition of his work but interpolated a prefatory passage emphasizing the "vital significance" of his message for appraising the "global strategic situation." It read as follows:

Today, if U.S. imperialists unleash war against the countries of the socialist commonwealth, U.S. territory, in contrast to past wars, might become a theater of combat action....¹⁸⁰

This, of course, is the old inferential technique we have seen employed with the local-war and intercontinental-counterforce doctrines. If U.S. territory "might" become involved, there is the inescapable implication that U.S. territory might not become involved as well; certainty is missing either way. And since U.S. territory would become involved whether Soviet strikes were counterforce or countervalue, there is the inescapable implication, too, that the U.S. in this scenario might be a sanctuary against any sort of intercontinental exchange. But if U.S. territory is granted immunity from nuclear effects, does this mean USSR territory would also be expected to have sanctuary status? The reader might as well know from the outset that this is one of the most important questions we will have to resolve, since it is difficult to imagine Moscow deliberately selecting an option that permitted asymmetry even with respect to collateral damage.

What kind of war did Gorshkov have in mind that might give the U.S. sanctuary benefits? Another few bits and pieces dribbled out in the report of a conference on "new" American strategic concepts held, early in 1976 presumably, at the Institute for the U.S.A. and Canada. Knowing the Soviet penchant for the double-duty use of alleged American views as surrogates and justifications for their own intentions, it is with more than uncommon interest that we see a new theme emerge at the conference, introduced with the studied casualness and indirection typical of even

the most momentous disclosures. According to Mil'shteyn, one of the early speakers, Mr. Schlesinger had enriched the U.S. doctrine of realistic deterrence

with still another type of war -- so-called 'limited strategic nuclear war,' meaning a limited exchange of strategic nuclear strikes on a small number of military targets. This type of war is grounded on the notion that neither side will have an interest in expanding a nuclear conflict and that both will prefer scenarios that open up the possibility of localizing it....¹⁸¹

Here Mil'shteyn seems to be attributing two types of limitations to the Schlesinger doctrine, one of which (weapons limitations) was really in the doctrine and another of which (geographical limitations) was not. That Mil'shteyn meant to imply geographical limitations is suggested by the remarks on a later occasion of another participant at the conference, Henry Trofimenko. American concepts of "the 'limited' use of strategic forces," he said, included "their limited use, not against the territory of the 'fundamental opponent' but, as it were, directly in the theater of military action for operational-tactical purposes (which they say becomes entirely possible as a result of the sharp increase in the accuracy of strategic missiles planned for in the U.S.)...."¹⁸²

The localization theme was also pursued at the conference by G.I. Svyatov.

In recent years the number of delivery vehicles in the U.S. strategic-nuclear arsenal has not changed, but it has acquired new qualitative characteristics. Already today the number of assured-delivery strategic-nuclear warheads exceeds the number of targets. As the Americans say, the warheads 'are looking for targets.' This could mean that some portion

of the strategic nuclear forces will be tied in to those tasks imposed on operational-tactical nuclear forces.¹⁸³

L.S. Semeyko addressed the same subject. He characterized as a "highly dangerous symptom" the Pentagon's "attempt to tie in strategic nuclear forces to war in a theater of military action -- dangerous from the point of view of the possibility of this kind of nuclear war's subsequent escalation."¹⁸⁴

What have we learned so far? That the U.S. plans a theater war employing both strategic- and tactical-nuclear forces; that the strikes will be counterforce, excluding countervalue; that the territories of both the U.S. and the Soviet Union will be sanctuaries; and that there is a "possibility" of escalation but no certainty. If anyone at the conference took a contrary line, however obliquely, I was unable to discern it.

This was only the beginning of the discussion. The most definitive formulation of the new tack was made by General-Major Rair Simonyan in an artfully constructed article in Red Star in May 1976, every word of which is worth its weight in analytical gold. I have often wondered, only half in jest, whether on the occasion of each doctrinal review Moscow does not run a private "socialist competition" to see who can express the new line with the most sophisticated deviousness and yet still be intelligible to the elite; the winner's reward would be a prolific publishing career, in which on one occasion an obscure point is clarified and on another occasion a previously clarified point is thrown back

into obscurity. If there was such a competition at the turn of 1975-76, Simonyan surely won it hands down.

Simonyan begins by reporting that a "new" classification of wars has been worked out by the Pentagon. Since the Pentagon had done nothing of the sort, at least along the lines alleged by Simonyan, we just have to resign ourselves that this is a Russian dream and make what sense we can out of the "dreamwork." According to Simonyan, later repeated word for word by Latukhin and Surikov, the Pentagon has abandoned the term "general" nuclear war and now speaks only of "strategic" nuclear war.¹⁸⁵ Simonyan and his plagiarists do not explain why the "Pentagon" has done this, but perhaps we can work it out. A "general" nuclear war, as the Soviets understand it, is the equivalent of their "world" nuclear war; a "strategic" nuclear war, on the other hand, would simply mean that strategic weapons were employed. Since the Soviets consider any missile system with a range over 1,000 kilometers to be strategic,¹⁸⁶ including the SS-20, one immediately wonders whether Simonyan's "strategic nuclear war" is not a catch-all category that includes Eurostrategic nuclear conflicts in addition to world nuclear conflicts. Our suspicions are further aroused by the fact that, of the four categories of wars alleged in the new "Pentagon" classification, the strategic-nuclear category was the only one not associated by Simonyan with a specific geographical area.

What a Soviet writer leaves out is just as worthy of attention as what he puts in.

There seems little doubt that this is the explanation. We will remember that Mil'shteyn had earlier, at the conference held at the Institute for the U.S.A., included the notion of geographical limitations in what he designated as the Schlesinger concept of limited "strategic" nuclear war. And Simonyan himself later charged, after the May 1978 session of the NATO Council, that "the total result of the fulfillment of all NATO programs will make it possible for the bloc to wage a strategic nuclear war with means stationed in its European zone...."¹⁸⁷ Simonyan had indicated the same thing obliquely in his initial Red Star article, later repeated word for word by Surikov. Although the U.S., they said, had substituted the term "strategic nuclear war" for "general nuclear war," the European members of NATO still held on to the old nomenclature. This did not mean that the Pentagon and its allies were contemplating fighting two different kinds of wars; on the contrary, the West European concept of general war "corresponds" to the Pentagon concept of strategic war.¹⁸⁸ What kind of a war involving strategic weapons could we have that would, at one and the same time, be "general" for the Europeans but not for the Americans? This is easy: what Simonyan himself calls a "Eurostrategic nuclear war." As he and others never tire of telling us, it is a matter of indifference to Europeans whether a nuclear war is

worldwide or restricted to their continent; they would suffer the same damage in either case.¹⁸⁹

Simonyan also tells us that, in the Pentagon view, "a strategic nuclear war might...be waged [mozhet...vestis'] with the unlimited use of all the forces and means the belligerent parties have in their possession...."¹⁹⁰ This is the old inferential technique again, implying that the "strategic" nuclear war envisaged, whether worldwide or restricted to Europe, would not necessarily escalate but might be either limited or all-out. While I am sympathetic with others who have translated this passage differently, I must insist on my own rendition.¹⁹¹ It is not only literally correct but compatible with what Simonyan reported about American views on other occasions. In 1977 and again in 1978 he said in identical words that Washington envisaged two types of strategic nuclear war: one "with the unlimited use of the entire arsenal of means of nuclear attack;" and the other "a 'limited' strategic war,...in which nuclear strikes can be inflicted only on military targets."¹⁹²

Latukhin (1978) and Surikov (1979) furnish other good examples. Each author, after repeating word for word Simonyan's statement that, in the Pentagon view, a strategic nuclear war "might" be unlimited, goes on a few pages later to say that all-out war is not the only scenario envisaged and that U.S. selective targeting in fact provided for "multiple options," including a

scenario allegedly designed "to limit the damage to both sides" through targeting restraint but actually aimed at unilaterally eliminating damage to the U.S. through a preemptive counterforce strike. According to Surikov, however, the Americans themselves recognize that this version of nuclear war harbors within itself the "real danger" (but not, mind you, the certainty) of escalation, which is why, in adopting the selective-targeting concept, the U.S. has nevertheless continued preparing for all-out war as well.¹⁹³ Even General-Major Sergeev, who had at first stated that, in the view of the American military-policy leadership, both sides would employ "the entire arsenal of means of armed combat" in a "strategic nuclear war," evidently did not mean this employment would necessarily be on an unlimited basis; several pages later he went on, in the fashion of Latukhin and Surikov, to characterize selective targeting as a "multi-scenario" concept, a "special place" in which is occupied by an option calling for "a mass surprise attack by U.S. strategic offensive forces against military targets in the Soviet Union...."¹⁹⁴

We must remember that Simonyan's 1976 article, the model for most later discussions, appeared before NATO got the wind up over Soviet Eurostrategic development and sounded off tentatively with countering plans of its own. This real NATO event, as opposed to the sham views attributed to Washington and Brussels in 1976, now gave Moscow the opportunity to give itself the color of an ag-

grieved party, responding only to Western initiatives. We have seen what scant respect should be accorded this version of the record; Soviet Eurostrategic ambitions were present in a decipherable form in the literature from the turn of 1975-76. However, it will pay us to look more closely at the Soviet reaction to NATO unrest from 1978 on, if only to confirm or deny what we thought we had learned about Soviet intentions up to that point and, equally important, to see what we can find out about how the Soviets intend to handle the problem of asymmetrical collateral damage to the USSR in a Eurostrategic option; at least, as this option is now understood in the West the damage is asymmetrical.

What precise intentions do the Russians charge us with in deploying our Eurostrategic systems? First of all, there is not the slightest hint of a charge that these systems are intended for an all-out strike on the USSR; the perceived danger is of a disarming counterforce strike, presumably against Soviet Eurostrategic systems, which "will deprive the 'potential opponent' [the USSR] of the possibility of carrying out a retaliatory strike in time."195

In deploying IRBM and GLCM systems for counterforce purposes, the U.S. is said to be pursuing a two-fold objective. There is an urgent need for us to examine the Soviet formulation of this objective for what it might tell us by implication about Soviet intentions for countering our alleged strategy, which for the most part are imprecisely specified. This is on the assumption that

Moscow would be unlikely to pose an enemy strategy as a problem unless it could be resolved; without a solution there would be no advertisement of the problem and of Soviet incapacity to deal with it.

One U.S. objective is said to be "new in principle," though it is clearly not the main Soviet concern. "It consists of delivering, in a general-war context, a double strike on the Soviet Union -- not only an American strategic strike but also a significantly more powerful than at present Eurostrategic strike, while U.S. territory would be subjected only to the USSR's strategic strike."¹⁹⁶ This formulation of the American objective is valuable for showing Soviet sensitivity to the problem of asymmetrical collateral damage, but it is hard to see what Moscow could do about it if we restrict ourselves to current Western thinking about Soviet options. If Soviet Eurostrategic systems remain in the USSR as a target for comparable Western systems, Moscow could produce SS-20s and Backfires until they were "coming out of their ears" without resolving the "double strike" problem. It could only be solved by abandoning SALT and matching each Western IRBM with a Soviet ICBM, but there is not the slightest sign of a Soviet threat to take this course. On the other hand, the double-strike problem could be done away with at a stroke by one simple expedient: moving the target of the Western Eurostrategic strike -- the Soviet Eurostrategic systems -- out of the USSR and into

Eastern Europe. Symmetry would then be restored; the USSR and the U.S. would each be subjected to single strikes, because the Western Eurostrategic counterforce strike would impact on Eastern Europe, not the USSR.

The second objective attributed to the U.S. also shows Soviet sensitivity to the problem of asymmetrical collateral damage: "in the context of a nuclear conflict, to draw off from itself to the maximum extent the threat of annihilating Soviet nuclear strikes by limiting the conflict to a European framework...."¹⁹⁷ In other words, the problem is the American ploy to gain a unilateral sanctuary status in Eurostrategic war. Logically the Soviets could take one of three courses to negate this strategy: deprive the U.S. of nuclear immunity through escalation; persuade NATO by threats and blandishments to forego Eurostrategic deployments; or, barring that, gain for the USSR sanctuary parity with the U.S.

If ever there was a situation that seemed to call for inevitable escalation, it would be this one. With Eurostrategic systems based in the USSR the option is inherently unstable; regardless of whether East or West strikes first, the USSR would sustain damage to its territory whereas the U.S. would escape all harm. It would be the most natural thing in the world, therefore, for Moscow to discourage Washington from Eurostrategic deployments by threatening the certainty of escalation. Simonyan, however, says

that a Eurostrategic conflict "could escalate into a global nuclear war...."198 Katasonov speaks of the "great likelihood" of escalation.199 According to Mil'shteyn, the use of U.S. forward-based nuclear systems, even on a limited scale, would be "an ominous step toward the global nuclear catastrophe"; it "might lead...to an irreversible escalation from a 'tactical conflict' to all-out nuclear war...."200 Semeyko seems to have the same implicit reservations about the certainty of escalation. We will remember that, at the think-tank conference of 1976, he had spoken only of the "possibility" of escalation, and he does not seem to have changed his estimate of the risks after NATO began to consider countering efforts.

The "Eurostrategy" of the NATO bloc will have a tendency...in the final analysis to increase the risk of nuclear war....The NATO "tactical" nuclear forces presently in existence are looked on as a sort of "connecting link" between conventional (nonnuclear) forces in Western Europe and U.S. strategic forces. It is felt that this link can ensure a "sufficiently gradual" escalation of the conflict up to the level of general nuclear war, and in certain circumstances even prevent it. Such calculations are, in themselves, quite risky. With the creation of qualitatively new weapons -- "Euromissiles" intended to fulfill strategic tasks -- such escalation would almost certainly be accelerated.201

Clearly escalation could "almost certainly be accelerated" without the war almost certainly getting to the top of the escalation ladder, much less necessarily getting there. In short, we seem to be dealing again with the inferential technique, implying that a Eurostrategic war could be contained at its own level. By analogy with Soviet handling of other options through this technique, its

use here in itself suggests that, far from intending to redress the asymmetry in collateral damage through escalation, Moscow in fact considers it to its advantage to keep the conflict at the Eurostrategic level. The Soviet solution to the asymmetry problem, therefore, has to be sought in some other direction.

Anyone who immerses himself in the literature of this period cannot avoid concluding that the real cutting edge of the Soviet threat is aimed at Western Europe; the U.S. is taking risks, but our allies are surely going to catch it. Instead of escalation, the emphasis is on "reciprocal efforts" on the part of the USSR.²⁰² The U.S. is charged with turning Western Europe "into a launch platform for American strategic weapons and a target for a retaliatory strike;" the USSR, if subjected to a Eurostrategic attack, will be "forced" to respond "with the same weaponry."²⁰³ According to Defense Minister Ustinov, "if the deployed [Eurostrategic] weapons are put to use by their owners, retaliatory action will follow [not just might follow] against the appropriate West European countries...."²⁰⁴ According to First Deputy Chief of the General Staff Akhromeev,

The USA is misleading the Europeans. In actual fact, the territory of these countries is becoming a launching site. While the USA will use it to accomplish its strategic tasks, the Europeans will eventually pay for this. In this case, the United States will find itself, as it were, on the reserve players' bench because the Soviet medium-range delivery vehicles are not stationed in the countries lying near the USA and cannot reach the United States from the territory of the USSR.²⁰⁵

All these threats of a symmetrical Soviet Eurostrategic response are well and good, if they succeed in persuading our allies to forego additional Eurostrategic capabilities. But if they are not persuaded, the Soviet threat of reciprocity in deployments and targeting would hardly redress the problem -- raised by the Soviets themselves, choked on as a bone in their throat on every occasion, and thus demanding a solution -- of reciprocity in collateral damage. Nor does it really attack the strategy of graduated escalation preferred by the West Europeans, but in a way falls in with that strategy, which counts on the asymmetry in superpower collateral damage to keep up the escalation momentum and permit the war to be fought out over their heads. Thus, when Brezhnev assured German Federal Chancellor Schmidt "with all certainty that in case such American missiles should be stationed in Western Europe, the USSR and its allies will take those measures which will reestablish the balance,"²⁰⁶ we wonder what he had in mind.

Again, there seems to be only one way Moscow can simultaneously and at one stroke defeat the alleged American strategy of securing a one-sided advantage in damage-avoidance in Eurostrategic counterforce war, the alleged American strategy of a double strike in intercontinental counterforce war, and the real West European strategy of graduated escalation, and that is by moving Soviet Eurostrategic capabilities into Eastern Europe. It reestab-

lishes parity in superpower collateral damage, not by increasing the damage to the U.S. through the escalation of a Eurostrategic war or an increase in the Soviet ICBM inventory for an intercontinental-counterforce exchange, but by commensurately decreasing the damage to the USSR as the result of substituting Eastern Europe in its place as the target for a Eurostrategic counterforce strike. At the same time the restoration of parity in collateral damage imparts greater stability to the Eurostrategic level and to that extent decouples it from the intercontinental level -- anathema to the West European strategy of escalation.

Not only is this the most logical course for Moscow, and implicitly their preferred course from the way they formulate the problem in the open literature; it is also the course Soviet authorities in private directly threaten to take. Back last fall, for example, Brezhnev met in Moscow with the Socialist International's Study Group on Disarmament. From his remarks, reported at a news conference by V.V. Zagladin, First Deputy Chief of the Central Committee's International Department, the inference was drawn by diplomats "that the Kremlin would consider placing SS-20s in Eastern Europe if the new Pershings were deployed in Western Europe."²⁰⁷ Technically, there seems no reason to discount the credibility of this threat. Golf-IIs can be serviced from a tender established, say, in Polish waters; Backfires with their support forces can fly into East-European airfields; and SS-20 crews

can simply drive their charges over the River Bug and set up shop a few miles into Poland. A.N. Latukhin, referring to the Soviet Union's "mobile strategic-missile complexes" and their ability to "serve several theaters of combat action," tells us that "the movement of such missiles from one theater of combat action to another is carried out by specially developed means of transport,"²⁰⁸ which would surely have been expressed a little differently if he associated mobility only with survivability, as we tend to do.

It would be unnecessary, and even disadvantageous, to deploy these strategic forces into Eastern Europe on a permanent basis. Permanent deployment might arouse anxiety in East Europe over its role of lightning-rod and expose Soviet Eurostrategic forces to easier surveillance and sabotage, as well as greater risks of a preemptive attack from the West; a decision to strike first against Eastern Europe would be less escalation-sensitive than against the territory of the superpower. Far better to have these forces take up their forward positions only in a crisis, early enough for the West to think through the full implications of decoupling but not early enough to be able to implement countering programs that require lead times.

There are precedents for holding back in the USSR forces and weapons intended for use on the main European axis. Reportedly, neither the 500 n.m. tactical missile Scaleboard nor the nuclear

warheads for any of the Soviet tactical missiles -- Frog and Scud, as well as Scaleboard -- are normally prepositioned in Eastern Europe, and in a crisis will have to be brought there from the Soviet Union.²⁰⁹

Although decoupling is represented by Moscow as a retaliatory measure, the objective seems to have already appeared in surrogate form at the think-tank conference of early 1976 -- and for reasons which were good at that time as well as later. Even then the West had significant Eurostrategic capabilities, which, though decidedly inferior to what the Soviets planned, could nonetheless inflict appreciable collateral damage in a counterforce exchange and burden any Kremlin decision to use the option. However, collateral casualties are unlikely to be the only reason for decoupling. Moscow also has to consider the effects of the positioning of its forces on the opponent's resolve, always the necessary second calculation in a diplomacy of force. "I make all the easy decisions; my enemy makes the hard ones" -- that has been the guiding principle all along, and surely just as attractive to the Russians as to us. Having stolen the march in Eurostrategic development, the Kremlin may now feel that it can, at the middle levels of the escalation ladder, enjoy some of the benefits of the strategy of response formerly monopolized by the West. Secure in its Eurostrategic lead, it can force the class opponent into a strategy of escalation. In that context, decoupling would clearly add to the

decision-making burden in Washington; in calling on intercontinental capabilities to compensate for deficiencies at the Eurostrategic level, the U.S. itself would be taking the crucial step in involving superpower territory and thus escalating the costs of war. However, in the absence of redeployment, the very first use of the Soviet Eurostrategic option from Soviet territory would constitute this crucial step, easing Washington's agony and affording it a natural causeway to the top. The disadvantages of this course in a test of political wills are there to some extent even if the Kremlin calculates -- as it not unreasonably could -- that, with the USSR having stolen the march in intercontinental development too, Washington may no longer have much to spare for patching up tears in the fabric below, since the conflict could become general and U.S.-based strategic capabilities would be needed for an intercontinental exchange.

Thus, the effects on the decision-making process on both sides conspire to make redeployment seem the logical Russian choice. If we are right about this choice and the reasons behind it -- and prudence dictates that we at least take the threat seriously -- there is probably only one development that could force a change: Soviet perceptions of an adverse shift in the Eurostrategic correlation. Then, one suspects, the Kremlin's approach would be quite different. No longer able to use the Eurostrategic option profitably and therefore no longer needing to decouple, Moscow at the same time would not want to afford the superior oppo-

nent decoupled Eurostrategic targets in Eastern Europe. It would make plain that such targets were in the Soviet Union to stay, that nothing could entice them out, and that any attack on them would amount to a first involvement of superpower territory, releasing the USSR from all constraints and easing the way for the "inevitable escalation" to follow.

As of now, however, that does not seem the Kremlin perception. We may even be seeing, alongside the new option, a new set of limited wartime political objectives to go with it. There is no direct association of Eurostrategic war with these objectives. The connection is oblique and highly tenuous, and may not exist at all. My hunch about the association stems from the way Simonyan discussed the alleged "Pentagon" classification of wars in 1976. He did not specify any political objectives at all for a Eurostrategic war as such; he simply noted that his catch-all category of "strategic" nuclear wars "might" be waged on an unlimited basis, gave the unlimited political objectives appropriate to an unlimited war, and then went on to treat what we would call "tactical-nuclear war in the theater" or "forward edge of the battle area (FEBA) nuclear war." According to Simonyan, the Pentagon and NATO have postulated "limited" political objectives for such a war, that is, "they should not put in question the very existence of the opponent's social system...."210 General-Major Sergeev,

also in the tactical nuclear context and without polemics, speaks at greater length of the American view:

In contrast to all-out or general nuclear war, a limited war is waged for quite concrete political objectives, the nature of which helps establish a certain dependence between the objectives and the force to be applied to gain the objectives. In general, in their opinion, a limited war involves concrete limited tasks, and not tasks calling for the complete elimination of an opponent.²¹¹

Simonyan takes issue with the tactical-nuclear option, "in the form of which it is presented,"²¹² but curiously enough only from "the purely military point of view," not the political.²¹³ While the Soviet estimate, as we shall see later, is apparently that a tactical-nuclear war would ultimately escalate to the "strategic level," though not necessarily immediately, Simonyan's and Sergeev's failure to ridicule the political objectives of the option could be interpreted as implying they might be carried along in the upward movement to Eurostrategic war. Whether this interpretation is worthy of notice or beneath it -- and I have my own reservations -- there does seem to be a general Soviet appreciation of the connection between limited options and limited objectives, though they are obviously reluctant to commit themselves unambiguously in print.

Future Options

The record of Soviet doctrinal innovations over the last two decades suggests a long-range development strategy, starting with the all-out nuclear option at the top of the escalation ladder and, in an orderly regression, introducing new independent options one at a time. The step-by-step character of the development is easily explained by the lack of resources for an across-the-board approach. As Mr. McNamara reasoned long ago, the Russians can do many things but not all at once. The initial breakthrough to any option is costly but, having made it, the expense of maintaining and upgrading the option will be less and efforts can be refocused on another breakthrough.

However, the peculiarly regressive character of Soviet development is less easy to explain. It differs radically from the progressive character of the U.S. approach. The Kremlin started from the top of the escalation ladder and is working its way down; Washington took its stand at the bottom of the ladder and, as a fallback, put its foot on the very next rung up. American authorities reasoned, quite correctly, that the low-damage conventional option can be used to secure the full range of objectives, whether their value be high or low, whereas the high-damage nuclear option is restricted to high-value objectives. They held on to the all-out option basically as a counter to the Russians (the strategy of

response), stressing through the MAD formula its inutility for initiating action.

This reasoning must have been equally cogent to the Russians. The proof is that they have not remained satisfied with the all-out option but have actively pursued others, and not as a counter to the Americans but as a developmental initiative of their own. And yet, in pursuing other options, the Russians have not followed the American pattern of countering the opponent at the all-out level and then reaching down immediately to the conventional level for their basic option, attractive though its elasticity might be for serving all objectives. Their development route is regressive, a periodic sallying forth to capture lower levels from the basic stronghold of all-out war; evidence of all-out war as still the basic option is the use of the inferential technique to announce other options, a technique so subtle that even experienced Western analysts are left with the impression of an unchanged declaratory orientation on unlimited war, even though this is belied by capabilities. And this is curious, for a diplomacy of force confident of its strength does not normally like to hide its light half-way under a bushel.

In clinging to all-out war as the basic option and taking the indirect regressive route toward limited options, the Kremlin evidently perceives some comparative advantage it has in war-waging effectiveness at the upper levels of the escalation ladder. Conventional war demands precision weaponry, a wide distribution of

technical skills, and a coalition loyal to the cause; of greater duration, it permits a superior productive base and greater manpower reserves to be fully brought to bear in the course of the war. All this, in the Soviet calculation, might favor the West. The power of a nuclear blast, on the other hand, can compensate for numerous deficiencies in precision; the crucial skills and loyalties to direct the blast are concentrated in button-pushing elites; and the action of these elites can either reduce the rear areas of both sides to the equality of the grave (all-out nuclear war) or sever their connection with the front (limited strategic war). All this, they might calculate, helps the USSR improve its relative position, without necessarily awarding it superiority.

Thus, in the American case, considerations of both damage limiting and relative effectiveness coincide in a preference for options at the lower end of the escalation spectrum. In the Soviet case these considerations diverge in their demands, one (damage-limiting) driving them to the low end of the spectrum and the other (effectiveness) to the high end. The problem before us now is whether the Kremlin, in its strategy of regressive development, will strike a compromise between these two extremes at the mid-point (the Eurostrategic option) or whether it will go on, sequentially, to acquire independent tactical-nuclear and conventional options, bearding the lion on what the Soviets at any rate evidently consider to be his own terrain. Moscow may, of course, be satisfied with the mid-point, but the evidence suggests we cannot

count on it even as the most likely course. Abstract calculations of comparative advantage always bear ceteris paribus qualifications; in this particular case all other things may not be equal, since there is an advantage to be gained in trying harder. We are not going to dispute that the USSR does try harder.

While, in its own eyes, Moscow has even yet not developed capabilities for tactical-nuclear and conventional warfare as independent options, there has been a gradual expansion of capabilities over the last 15 years on a dependent basis, to the extent that, with successive major pushes, there could be breakthroughs to independent options. The first half of the '60s was the low point in Soviet tactical-nuclear and conventional capabilities; the war was evidently expected on that account to escalate to the all-out level more or less immediately. In the doctrinal period 1966-70, however, Moscow introduced the concept of a "war by stages," involving an initial conventional phase, followed by tactical-nuclear action that would inevitably erupt, sooner rather than later, into all-out war. With respect to the duration of the conventional phase, the Soviets spoke only of "operations" [operatsii], the employment of the "first operational echelon," and the need to break through into the "operational depth" and seize objectives of "operational importance." In other words, planning was in terms of an "operation," and presumably a "front" rather than an "army" operation, while the prosecution of "immediate and subsequent tasks" (the tasks of the first and succeeding

strategic operations) and of "intermediate tasks" (the tasks of a campaign) were specifically eschewed.²¹⁴ A front operation is the organized action of operational and tactical formations under a front commander, which in World War II lasted from 8-20 days.²¹⁵

Planning in terms of a front operation was attributed to "foreign military theoreticians," but we should not be thrown by this; the Soviets indicated the same guidelines explicitly for themselves by the use of other specialized terminology. In this period they tended to speak of a conventional "war" only with reference to a "local war," defined in such a way as to automatically exclude a war between the two coalitions.²¹⁶ For the latter type of conflict, they spoke rather of conventional "military action" [voennye deystviya]²¹⁷ or "combat action" [boevye deystviya],²¹⁸ thereby subtly underscoring its arrested character. The majority of Soviet authors reserve the term "military action" for action only at the strategic level, employing the term "combat action" for efforts at both the operational and tactical levels. A minority of authors, however, extend the term "military action" to include both the operational and strategic levels, restricting "combat action" to the tactical sphere.²¹⁹ Soviet references to both "military" and "combat" action, therefore, point only to a conventional "operation," since the operational art is the only common denominator between the two terms, i.e., "military action" is nev-

er correctly used in connection with tactics, nor "combat action" in connection with strategy.

Those writers who reserved the term "military action" for the strategic level could even use their understanding of the distinction between the two terms to illuminate the difference between plans for the conventional and nuclear phases of the war. Thus, in 1970 General-Major Zav'yalov made a point of telling us twice in the same article that "there are many differences in principle between the art of conducting military action with the use of nuclear weapons and the art of conducting combat action with conventional types of weapons."²²⁰ Lototskiy and his colleagues had earlier said:

It is necessary to teach fightingmen what is required in a thermonuclear war. At the same time it is necessary to take into consideration the possibility of conducting combat action with conventional weapons, as well as the possibility of this escalating into military action with the use of nuclear-missile weapons.²²¹

Thus the authors refer to conventional combat action, its escalation to nuclear military action, and (without reference to escalation) thermonuclear war. It has occurred to me, though I do no more than call attention to it, that this may be a highly oblique way of indicating the scale of each phase of the "war by stages": front operations in the conventional phase; strategic action (possibly in the form of a strategic operation) in the tactical-nuclear phase; and superstrategic action in the all-out phase, which is the war proper. However, the safest course is to admit that we

AD-A141 384

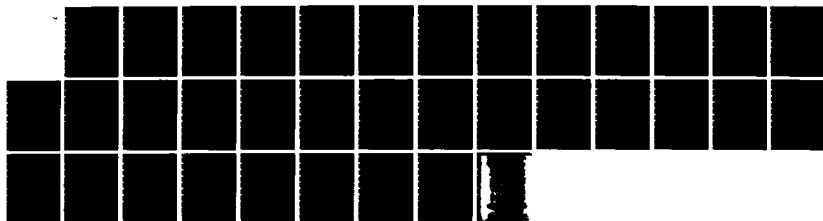
THE INTERACTING EVOLUTION OF SOVIET AND AMERICAN
MILITARY DOCTRINES(U) CENTER FOR NAVAL ANALYSES
ALEXANDRIA VA J M MCCONNELL SEP 88 CNA-PP-412

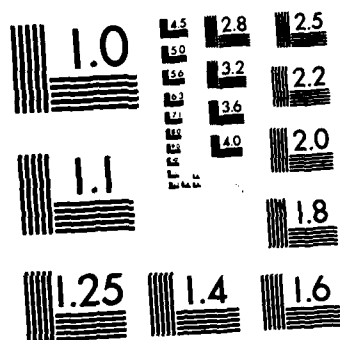
2/2

UNCLASSIFIED

F/G 15/7

NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

know only the organized form of the conventional action from 1966-75 but nothing that even approaches solidity about the tactical-nuclear phase.

Things were to change in the doctrinal period 1976-80. In his Red Star article in 1976 Simonyan had referred to two American options relevant to our discussion in the new "Pentagon" classification of wars. One was tactical-nuclear war confined to the combat zone, which "the Pentagon" was said to feel was possible "first of all" in the European theater;²²² however, Vice-Admiral Gontaev seemed to be negating the force of this American option as a surrogate by reporting the feeling of "many foreign specialists that one has only to use nuclear weapons, even if in a tactical zone -- and they will inevitably be used on a strategic scale."²²³ Still, as Simonyan and others point out, employing the inferential technique, such escalation need not be "immediate,"²²⁴ implying continued Soviet adherence to the "war by stages" concept.

Another relevant option attributed by Simonyan to the U.S. was conventional war on the scale of an entire theater of war (as opposed to a "local war" or a war in a part of a theater), which could be unleashed "not only in Europe, but also in Asia." Although Simonyan says of this option only that it "is fraught with the constant danger of being transformed into a nuclear war,"²²⁵ continued Soviet adherence to a war by stages seems to

negate it as an independent option for a NATO-Warsaw Pact faceoff in Europe. However, its surrogate force for a war in Asia is by no means negated. Since it is difficult to cook up any scenario in Asia other than a Sino-Soviet conflict that would be on the scale of an entire theater but still restricted to that geographical area, this might be the intended implication. I do not push the interpretation, but it is interesting that the option appears in a doctrinal period when the Chinese, for the first time, have acquired the necessary weaponry for a direct nuclear strike against Moscow.²²⁶

Except for the above references to tactical-nuclear and conventional "war" in a theater, the Soviets have otherwise continued to prefer the term "action" rather than "war" in discussing the tactical-nuclear and conventional options. However, there is a difference in the type of "action" indicated. Whereas in previous doctrinal periods no types of "action" were found unambiguously specified for the tactical-nuclear phase, but with both "military" and "combat" action specified for the conventional phase (implying an "operation" as the common denominator), in the current doctrinal period "military action" alone has been uniformly ascribed to both phases; and in at least one case the ascription was by an authors' collective that used "military action" exclusively for action at the strategic level, reserving "combat action" for the operational and tactical levels.²²⁷ According to Chief of the

General Staff Ogarkov, for example,

The present-day military strategy of the U.S. and the other countries of NATO proceeds mainly from the concept of waging general war.... At the same time the possibility is recognized of conducting protracted military action with conventional weapons alone and, in individual theaters of military action, even with the limited use of nuclear weapons....²²⁸

Thus, Marshal Ogarkov is willing to dignify a strategic nuclear conflict with the epithet "war," but the reference to conventional and tactical-nuclear "action" betrays their truncated, uncompleted character as phases of war. However, as "military" action, it is now at the strategic level for both options. In the case of the conventional phase, this is probably (since it is the next step up from the front operation) a "strategic operation," i.e., an organized series of simultaneous and successive front operations carried out under the aegis of the Stavka of the Supreme High Command; in World War II, we will recall, such operations lasted up to 30 days. Planned action in the case of the tactical-nuclear phase would take the form of either a strategic operation or a series of strategic operations organized as a campaign, both of unknown duration.

The apparent Soviet pattern of a methodical, step-by-step acquisition of new independent options in successive five-year plans, together with the progressive expansion over time in the duration of tactical-nuclear and conventional action as dependent options, suggests that in future doctrinal periods these options could be elevated to the status of full-fledged wars, rather than

mere phases of war. Given the regressive sequence in the Soviet pattern of development, the coming 1981-85 doctrinal period could witness, say, the breakthrough to an independent tactical-nuclear option, with the simultaneous tailoring of conventional endurance to the requirements of a campaign of perhaps 90 days. The turn of conventional action for elevation to independent status would then come in the doctrinal period 1986-90; and in the meantime, Moscow would continue to upgrade its other options. This, of course, is only a mechanical extrapolation of past trends; the actual pace and sequence of development could turn out quite different.

Still, as long as it is not taken too seriously, we need a model of Soviet military development; and perhaps we now have the necessary experience with past practice to create such a model, however tentatively advanced and cautiously received it ought to be. Twice in the '70s we have been surprised by Soviet initiatives; no sooner had we discerned one initiative, pondered its strategic meaning and debated possible reactions than a new initiative was thrust upon us before counteraction could be implemented -- and all this in connection with levels of the escalation ladder where the U.S. makes the major decisions for the alliance, with almost no one to debate with but ourselves. But Moscow is now approaching regions of the option spectrum where our allies quite properly have more to say, and they notoriously do not see eye-to-eye with us even on the fundamentals of alliance strategy. One can only hope their expressed preference for a strategy of es-

calation proves to be more a matter of intra-alliance bargaining to shift the burden at the margin than a serious recipe for coping with the common opponent, an opponent who apparently understands very well the disadvantages of such a strategy and seems determined to put the West in that position if he can. But even if this more sanguine interpretation of our allies' position proves out in the crunch, the problem still remains of quick reaction, and for this we need a set of expectations and a plan for coping should these expectations unhappily materialize. It is not a matter of taking development action on the basis of the model, but of planning action on that basis, debating and resolving our differences on the proper responses beforehand. That way there ought to be less occasion for falling behind.

However, we not only need a set of expectations to orient our planning; we also need to recognize innovations more swiftly when they occur. In this connection perhaps the greatest neglect has been in exploiting the open literature. This is not only another indicator of Soviet intentions; it is also often the earliest indicator. Sometimes it is late in a doctrinal period before we see deployments for an option; it is sometimes rather late before convincing evidence accumulates on weapons development; but, as I have tried to show, the Soviets appear to begin discussing new options at the very beginning of the doctrinal period. These discussions are carried on in a fragmentary and oblique manner, to be sure, and the reader himself always has to be an active partici-

pant in the communication process. But if we once resign ourselves to learning the "customer's" specialized language, steep ourselves in his standard formulas and patterns of communication, and avoid the arbitrary assumptions and interpretations that have given Kremlinology a deservedly bad name, then there might be many returns to our security.

FOOTNOTES

1. In a recent paper, Soviet and American Strategic Doctrines: One More Time (Center for Naval Analyses Professional Paper 271, Alexandria, Va., 1980), I reexamined a topic of perennial interest -- the similarities and differences in U.S. and Soviet deterrence theories and in the final pages offered an hypothesis that might account for them. Since this in turn was derived from an analysis of underlying military options that could not be adequately discussed and documented in so short a compass, I had to promise a fuller future treatment. This paper is in fulfillment of that promise.
2. By an independent option, I mean one with discernible thresholds and bounds that, in the abstract, is not inherently excessively unstable; in addition, reasonable and prudent preparations should have been made to carry out the options to the end in terms of the inner logic of war, i.e., gain victory. This latter condition, of course, would not apply to the assured-destruction option, since its objective is the purely political one of deterring an all-out attack.
3. See, for example, S.G. Gorshkov, "Navies in War and Peace," Morskoy sbornik (hereafter MS), No. 6, 1972, p. 13.
4. The quote is from General-Major Talenskiy in 1953, cited and cogently discussed in H.S. Dinerstein, War and the Soviet Union (rev. ed., N.Y., London, Praeger, 1962), 10-11, 37.
5. P.A. Chuvikov, Marksizm-leninizm o voyne i armii (2nd ed., Moscow, 1956), 134.
6. For the two aspects of doctrine, see S.N. Kozlov, M.V. Smirnov, I.S. Baz' and P.A. Sidorov, O Sovetskoy voennoy nauke (2nd ed., Moscow, 1964), 381.
7. N.P. Prokop'ev, O voyne i armii (Moscow, 1965), 201.
8. I.E. Shavrov and M.I. Galkin (eds.), Metodologiya voenno-nauchnogo poznaniya (Moscow, 1977), 283.
9. Fred C. Ikle, "Can Nuclear Deterrence Last Out the Century?," Foreign Affairs, LI, No. 2 (January 1973), 276-277.
10. Dinerstein, op. cit., 96-97.
11. M. Leitenberg, "Background Materials in Tactical Nuclear Weapons," in Stockholm International Peace Research Institute, Tactical-Nuclear Weapons: European Perspectives (N.Y., Crane, Russak, 1978), 12-14.
12. Henry L. Trewhitt, McNamara (N.Y., Harper and Row, 1971), 25.

13. Jerome N. Kahan, Security in the Nuclear Age (Wash., D.C., Brookings Institution, 1975), 75.
14. Leitenberg, op. cit., 17.
15. U.S. refusal to take full advantage of available tactical-nuclear technology is acknowledged by critics and defenders alike. See Phillip A. Karber, "Nuclear Weapons and 'Flexible Response'," Orbis, XIV, No. 2 (Summer 1970); James H. Polk, "The Realities of Tactical Nuclear Warfare," Orbis, XVII, No. 2 (1973), 447; William R. Van Cleave and Samuel T. Cohen, Tactical Nuclear Weapons (N.Y., Crane, Russak, 1978), 29, 35; Alain Enthoven's statement in Nuclear Weapons and Foreign Policy, Hearings Before the U.S. Security Agreements and Arms Control Subcommittees of the Senate Foreign Relations Committee (Wash., D.C., GPO, 1974), 73; Leitenberg, op. cit., 52-53; George B. Kistiakowsky, "Weaponry: the Folly of the Neutron Bomb," Atlantic, June 1978, p. 4.
16. Alain C. Enthoven and K. Wayne Smith, How Much is Enough? (N.Y., Evanston, London, Harper and Row, 1971), 168-169.
17. William W. Kaufman, The McNamara Strategy (New York, Evanston, London, Harper and Row, 1964), 66-67.
18. Ibid.; John F. Kennedy, The Strategy of Peace (N.Y., Harper, 1960), 183-186.
19. Kaufman, op. cit., 66-67.
20. Kahan, op. cit., 84-87.
21. Trewhitt, op. cit., 113; Kaufman, op. cit., 116.
22. Ibid., 120-124; Leitenberg, op. cit., 22-23.
23. Trewhitt, op. cit., 115.
24. Robert S. McNamara, The Essence of Security (N.Y., Evanston, London, Harper and Row, 1968), 55, 75-76.
25. Kaufman, op. cit., 71-88, 120-121.
26. Enthoven statement, Nuclear Weapons and Foreign Policy, 133.
27. Henry Kissinger, "The Unsolved Problems of European Defense," Foreign Affairs, XL, No. 4 (July 1962), 518; Michael Howard, "The Relevance of Traditional Strategy," ibid., LI, No. 2 (January 1973), 262.
28. Enthoven statement, Nuclear Weapons and Foreign Policy, 96.

29. Robert McNamara, "The Spectrum of Defense," in Henry Kissinger (ed.), Problems of National Strategy (N.Y., Praeger, 1965), 113.
30. Enthoven and Smith, How Much is Enough?, 126-127.
31. Cited by Kaufman, op. cit., 133.
32. Kaufman, op. cit., 93, 305-306; Herbert York, Race to Oblivion (N.Y., Simon and Schuster, 1970), 167.
33. Ibid., 148.
34. A. Pyatkin, "Certain Problems in the Marxist-Leninist Theory of War," in Marksizm-leninizm o voyne, armii i voennoy nauke: sbornik statey (Moscow, 1955), 56.
35. Dinerstein, op. cit., 174-176, 208.
36. Ibid., 178-179.
37. Raymond Garthoff, Soviet Strategy in the Nuclear Age (rev. ed., N.Y., Praeger, 1962), 78-79, 102-103, 108-113, 181.
38. Ibid., 88; S. Mazhorov and I. Tikhonov, "The Progressive Character of Soviet Military Science," Krasnaya zvezda (hereafter KZ), 28 February 1954.
39. Dinerstein, op. cit., 24-25, 76-77, 187-211.
40. J. McConnell, "The Gorshkov Articles, the New Gorshkov Book, and Their Relation to Policy," in Michael McGwire and John McDonnell (eds.), Soviet Naval Influence (N.Y., London, Praeger, 1977), 568-569, 607-608.
41. John Strachey, On the Prevention of War (London, Macmillan, 1962), 37-38.
42. K. Moskalenko, "The Missile Troops Stand Guard Over the Security of the Motherland," KZ, 13 September 1961.
43. R. Malinovskiy, "The CPSU Program and Problems of Strengthening the USSR's Armed Forces," Kommunist, No. 7, 1962, p. 19; E. Sulimov and A. Timorin, "Basic Features of the Modern Stage in Developing the USSR's Armed Forces," Kommunist vooruzhennykh sil (hereafter KVS), No. 24, 1962, p. 42; S. Shtemenko, "Scientific-Technical Progress and its Influence on the Development of Military Affairs," KVS, No. 3, 1963, p. 27; D. Kazakov, "The Theoretical and Methodological Foundations of Soviet Military Science," KVS, No. 10, 1963, p. 12; S.N. Kozlov, M.V. Smirnov et. al, O Sovetskoy voennoy nauke

- (2nd ed., Moscow, 1964), 348, 388; N. Lomov, "The New Weapons and the Nature of War," KZ, 7 January 1964; N. Sushko, "Laws Determining the Course and Outcome of War," KZ, 7 February 1964; V. Larionov, "The New Means of Combat and Strategy," KZ, 8 April 1964; M. D'yachenko, "Nuclear-Missile Weapons and Man," KZ, 19 May 1964; V. Sokolovskiy and M. Cherednichenko, "Military Art at a New Stage," KZ, 25 and 28 August 1964; M.V. Popov, Sushchnost' zakonov vooruzhennoy bor'by (Moscow, 1964), 67-68; N.P. Prokop'ev, O voyne i armii (Moscow, 1965), 250.
44. M.V. Zakharov (ed.), 50 let Vooruzhennykh Sil SSSR (Moscow, 1968), 521-523; P. Trifonenkov, "The Objective Laws of War and the Principles of the Military Art," KVS, No. 1, 1966, pp. 11-12; S. Tyushkevich, "The Present-Day Revolution in Military Affairs: Its Sources and Character," KVS, No. 20, 1966, pp. 24-25; N. Ya. Sushko and T.R. Kondratkov (eds.), Metodologicheskie problemy voennoy teorii i praktiki (Moscow, 1966), 134; N. Krylov, "Nuclear-Missile Shield of the Soviet State," Voennaya mysl' (hereafter VM), No. 11, 1967, pp. 15, 19; G. Semenov and V. Prokhorov, "Scientific-Technical Progress and Certain Problems of Strategy," VM, No. 2, 1969, p. 28.
 45. Krylov, op. cit., 19.
 46. S.N. Krasil'nikov and A.E. Yakovlev, Slovar' osnovnykh voennykh terminov (Moscow, 1965), 132.
 47. Ibid., 139.
 48. Tyushkevich, op. cit., 24.
 49. S.N. Kozlov, M.V. Smirnov et al., op. cit., 359-360; "A Military Campaign," Bol'shaya Sovetskaya Entsiklopediya, 3rd ed., XI (Moscow, 1973), 284.
 50. N.D. Saltykov, "An Operation by a Group of Fronts," Sovetskaya Voennaya Entsiklopediya, VI (Moscow, 1978), 68.
 51. Kozlov, Smirnov et al., op. cit., 357; N.A. Sbytov, "The Nature and Law-Governed Regularities of a World Nuclear-Missile War," Morskoy sbornik (hereafter MS), No. 3, 1964, p. 13.
 52. N. Vasendin and N. Kuznetsov, "Modern War and Surprise," VM, No. 6, 1968, p. 47.
 53. I. Zav'yalov, "The XXII Congress of the CPSU and Problems of Further Strengthening the Armed Forces," VM, No. 7, 1966, pp. 4-5; V. Zemskov, "Characteristic Distinguishing Features of Modern Wars and the Possible Methods for Waging Them," VM, No. 7, 1969, p. 21.

54. D. Mel'nikov, N. Talensky, A. Yermonsky, "The Main Problem of the 20th Century," International Affairs (Moscow), September 1963, p. 13.
55. I. Glagolev and V. Larionov, "Soviet Defense Might and Peaceful Co-existence," ibid., November 1963, p. 31.
56. N. Lomov, "The Basic Tenets of Soviet Military Doctrine," KZ, 10 January 1964.
57. N. Sushko and T. Kondratkov, "War and Policy in the 'Nuclear Age'," KVS, No. 2, 1964, p. 17; V. Zemskov, VM, No. 7, 1969, p. 23; S. Shtrik, "Encircling and Wiping Out and Opponent When Conducting Combat Action Without the Use of Nuclear Weapons," VM, No. 1, 1968, p. 58; S.N. Kozlov, "Military Science and Military Doctrine," in A.S. Zheltov, T.R. Kondratkov and E.A. Khomenko (eds.), Metodologicheskie problemy voennoy teorii i praktiki (2nd ed., Moscow, 1969), 288; A. Grechko, Vooruzhennyye sily Sovetskogo gosudarstva (1st Moscow, 1974), 317; P.I. Sergeev (ed.), Vooruzhennyye sily kapitalisticheskikh gosudarstv (2nd ed., Moscow, 1979), 122. For exercises, see William F. Scott, "Changes in Tactical Concepts Within the Soviet Forces," in Lawrence L. Whetten (ed.), The Future of Soviet Military Power (N.Y., Crane, Russak, 1976), 77.
58. Garthoff, op. cit., 254.
59. Glagolev and Larionov, op. cit., 32; N. Krylov, "Nuclear-Missile Shield of the Soviet State," VM, No. 11, 1967, p. 20.
60. M. Kh. Kalashnik (ed.), Na strazhe Rodiny, stroyashchey kommunizm (Moscow, 1962), 301-302; D. Palevich and I. Poznyak, "The Distinguishing Characteristics and Nature of World Nuclear-Missile War," KVS, No. 20, 1964, p. 78; G.I. Korotkov in A.A. Strokov (ed.), op. cit., 633; Strokov in A.S. Zheltov (ed.), V.I. Lenin in Sovetskie Vooruzhennyye Sily (Moscow, 1967), 226-227.
61. For example, V. Petrov, "Train Subordinates for Active Combat Operations in Conditions of Nuclear Weapons Use," KVS, No. 12, 1963, p. 70; P.T. Astashenkov, Sovetskie raketnye voyska (Moscow, 1964), p. 67; B.T. Surikov, Boevoe primeneniye raket (Moscow, 1965), 54-55; P.R. Myaskovskiy in A.S. Zheltov (ed.), op. cit., 264; editorial, "Mighty Guardian of the Soviet Motherland," KVS, No. 28, 1968, p. 78; S.S. Lototskiy, "Development of the Soviet Armed Forces and the Military Art Since 1954," in I. Kh. Bagramyan (ed.), Istoriya voyn i voennogo iskusstva (Moscow, 1970), 494-495.

62. P. Rotmistrov, "The Reasons for Today's Wars and Their Distinctive Features," KVS, No. 2, 1963, p. 29; Sokolovskiy and Cherednichenko, KZ, 28 August 1964; S. Malyanchikov, "The Nature and Distinguishing Features of Nuclear-Missile War," KVS, No. 21, 1965, p. 70, 72; A. Pantaleev, "Certain Problems of Fleet Operations in Modern War," MS, No. 2, 1966, pp. 29-30; T. Kondratkov, "The Nature and Special Features of Modern War," KVS, No. 19, 1967, p. 83; V.D. Sokolovskiy (ed.), Voen-naya strategiya (3rd ed., Moscow, 1968), 244, 254-255, 292, 330-332; M.V. Zakharov (ed.), op. cit., 523-524; S.N. Kozlov in S.A. Tyushkevich, N. Ya. Susko and Ya. S. Dzyuba (eds.) Marksizm-leninizm o voyne i armii (5th ed., Moscow, 1968), 350-351.
63. J. McConnell, "Evolution of the Soviet Navy's Mission Structure," to be published in a forthcoming issue of Marine-Rundschau.
64. McConnell, in McGwire and McDonnell (eds.), op. cit., 586.
65. N.M. Kharlamov, "Naval Developmental Trends," MS, No. 1, 1966, pp. 32, 35; Yu. A. Bryukhanov, "Air Combat Action Against Submarines," MS, No. 6, 1966, p. 37; Palevich and Poznyak, KVS, No. 20, 1964, p. 80; P.V. Nikolaev, "The Problem of Combatting Nuclear-Powered Submarine Missile Carriers," MS, No. 2, 1965, pp. 24-25; V.I. Surabekov, "Basic Features of the Present-Day Armed Struggle at Sea," MS, No. 6, 1969, p. 29.
66. K.A. Stalbo in S.E. Zakharov (ed.), Istoriya voenno-morskogo iskusstva (Moscow, 1969), 531; V.F. Droblenkov and V.N. Gerasimov, Ugroza iz glubiny (Moscow, 1966), 302; S.G. Gorshkov, "On Guard Over the Gains of Great October," MS, No. 10, 1967, p. 13.
67. V. Kasatonov, "On the Role of Surface ships in Combat at Sea," VM, No. 2, 1969, pp. 32-33.
68. This is often assumed, but never demonstrated. While open to the possibility, I myself have never seen a convincing case of deliberate opposition, however veiled, to the prevailing line. The Soviets openly debate many subjects both in and out of the military sphere, but apparently not assigned missions. On the other hand, I would consider it a miracle if the struggle behind the scenes was not as bitter as anywhere else.
69. V. Zemskov, VM, No. 7, 1969, p. 22.
70. Institute for Strategic Studies, The Military Balance 1970-1971 (London, 1970), 105.

71. Kahan, op. cit., 77.
72. McConnell, Soviet and American Strategic Doctrines: One More Time, passim.
73. Ibid.
74. Beijing Renmin Ribao, 11 January 1980, reported in Foreign Broadcast Information Service (FBIS), Daily Report: People's Republic of China, FBIS-CHI-80-010, 15 January 1980, Vol. I, C4.
75. Report of Secretary of Defense Harold Brown to the Congress on the FY 1980 Budget, FY 1981 Authorization Request and FY 1980-1984 Defense Programs, 25 January 1979, p. 35.
76. Secretary of Defense Donald Rumsfeld, Annual Defense Department Report FY 1977, January 1976, p. 96.
77. Benjamin S. Lambeth, "Selective Nuclear Operations and Soviet Strategy," in Johan J. Holst and Uwe Nerlich (eds.), Beyond Nuclear Deterrence (N.Y., Crane, Russak, 1977), 84-85.
78. N. Khrushchev, Khrushchev Remembers, translated and edited by Strobe Talbott (London, Andre Deutsch, 1974), 52-53.
79. V.D. Sokolovskiy (ed.), Voennaya strategiya (2nd ed., Moscow, 1963), 394; ibid. (3rd ed., Moscow, 1968), 81, 361; Kozlov, Smirnov et al., op. cit., 376; P.P. Nevzorov, "The Use of Aviation in Combatting Submarines," MS, No. 9, 1964, p. 32; B.T. Surikov, op. cit., 160; N. Vasendin and N. Kuznetsov, "Modern War and Surprise," VM, No. 6, 1968, p. 42; Stalbo in S.E. Zakharov (ed.), op. cit., 569; K. Stalbo, "The Importance of Seas and Oceans in Combat Action," VM, No. 3, 1971, p. 48; V. Bestuzhev, "Combat Action at Sea," VM, No. 7, 1971, pp. 63, 66; S.G. Gorshkov, "Navies in War and Peace," MS, No. 2, 1973, p. 21; A.V. Basov, "The Navy After the Great Patriotic War," in Basov, Achkasov, et al., Boevoy put' Sovetskogo Voenno-Morskogo Flota (3rd ed., Moscow, 1974), 491; L. Semeyko, "New Forms, Old Content," KZ, 8 April 1975, p. 3; S.G. Gorshkov, Morskaya moshch' gosudarstva (1st ed., Moscow, 1976), 360; S. Lobov, "Seapower of the State and its Defense Capabilities," MS, No. 4, 1976, p. 104; V.D. Ryabchuk, "Combatting Nuclear Forces and Means," Sovetskaya Voennaya Entsiklopediya, Vol. I (Moscow, 1976), 576; R. Simonyan, "Wars Through the Eyes of the Pentagon," KZ, 27 May 1976; G.V. Zimin (ed.), Razvitie protivovozdushnoy oborony (Moscow, 1976), 87; R.G. Simonyan, Voennye bloki imperializma (Moscow, 1976), 48; A.N. Latukhin, Boevye upravlyaemye rakety (2nd ed., Moscow, 1978), 150; A. Gontaev, "American Military Doctrine," MS, No. 2, 1978, p. 115; R. Simonyan, "The Wager on Nuclear Superiority," KZ, 20 June 1978, p. 3; R. Simonyan, "On the Lookout for a 'New Strategy'," Pravda, 19 March 1979, p. 4;

B.T. Surikov, Boevoe primeneniye raket sukhoputnykh voysk (Moscow, 1979), 78, 81; N. Petrov, N. Sokolov, I. Vladimirov and P. Katin, SShA i NATO: istochniye voennoy ugrozy (Moscow, 1979), 44. There are two exceptions to this uniform pattern. Professor Zvyagin has spoken of the "need" to "substantially degrade" strikes from the sea against ground targets. General-Major Sergeev asserts that, whereas in the 60s flexible response implied a potential for "significantly degrading" the USSR's retaliatory strike, today's selective-targeting concept reflects a belief on the part of U.S. military leaders that a surprise attack can "substantially degrade" the Soviet retaliatory strike. See K. Zvyagin, "The Fleets of the Great Powers in the Postwar Period," MS, No. 11, 1973, p. 100; Sergeev (ed.) op. cit., 192-193, 199.

80. N.I. Belavin and V.M. Kuplyanskiy, Glavnoye oruzhie flota (Moscow, 1965), 239, 244-245, 247; Sokolovskiy (ed.), Voen-naya strategiya (2nd ed., 1963), 251-252.
81. Kharlamov, MS, No. 1, 1966, p. 32.
82. Bestuzhev, op. cit., 66; Basov, op. cit., 491.
83. Vasendin and Kuznetsov, op. cit., 46.
84. M.P. Skirdo, Narod, armiya, polkovodets (Moscow, 1970), 127; S.A. Bartenev, Ekonomika -- tyl i front sovremennoy voyny (Moscow, 1971), 86.
85. O. Shul'man, "Formulating the Combat Task," MS, No. 8, 1976, p. 19.
86. Gorshkov, "Navies in War and Peace," MS, No. 4, 1972, pp. 19-20.
87. Zimin (ed.), op. cit., 99-100.
88. Latukhin, op. cit., 79.
89. Yu. Maslennikov, "In the 'Cold-War' Channel," MS, No. 4, 1976, p. 87; P.V. Nikolaev, MS, No. 2, 1965, pp. 24-25.
90. S. Shapovalov, "Views of the U.S. and NATO Command on Waging 'Anti-Submarine Warfare'," MS, No. 11, 1976, p. 86.
91. N. Sushko and T. Kondratkov, "War and policy in the 'Nuclear Age'," KVS, No. 2, 1964, p. 20; V. Larionov, "The New Means of Combat and Strategy," KZ, 8 April 1964; M.V. Popov, Sushchnost' zakonov vooruzhennoy bor'by (Moscow, 1964), 61-62; S. Malyanchikov, KVS, No. 21, 1965, p. 70; A.A. Strovov, "The Buildup of the USSR Armed Forces and the Development of Soviet Military Art in the Postwar Period," in Strovov (ed.),

Istoriya voennogo iskusstva (Moscow, 1966), 608; G.I. Korotkov, "Development of the Armed Forces and Military Theory of the Main Capitalist Countries after World War II," in ibid., 632-633.

92. Garthoff, op. cit., 113.
93. Dinerstein, op. cit., 28-29; McConnell, "Doctrine and Capabilities," in Bradford Dismukes and James McConnell (eds.), Soviet Naval Diplomacy (N.Y., Pergamon Press, 1979), 6.
94. Garthoff, op. cit., 112.
95. McConnell in Dismukes and McConnell (eds.), op. cit., 10-21, 309.
96. Ibid., 12.
97. V.G. Korionov, "Proletarian Internationalism -- Our Victorious Weapon," International Affairs, No. 8, 1963, p. 17; I. Glagolev and V. Larionov, ibid., No. 11, 1963, p. 29; I. Maareev, "Invincible Shield of the Land of Socialism," KVS, No. 3, 1964, pp. 12-14; L. Sbytov, "The Armed Forces of the USSR in the Postwar Period," KVS, No. 3, 1964, p. 70.
98. S. Baranov and E. Nikitin, "CPSU Leadership is the Foundation of Foundations of Soviet Military Development," KVS, No. 8, 1963, p. 21.
99. McConnell in Dismukes and McConnell (eds.), op. cit., 23-28; K. Stepanov and E. Rybkin, "On the nature and Types of Wars of the Modern Era," VM, No. 2, 1968, p. 67; V. Matsulenko, "Local Wars of Imperialism (1946-1948)," Voenno-istoricheskiy zhurnal (hereafter VIZ), No. 9, 1968, p. 38; V.A. Sekistov and V.A. Matsulenko, "The Armed Forces and Military Art of the Main Capitalist States after World War II," in I. Kh. Bagramyan (ed.), Voennaya istoriya (Moscow, 1971), 318-319.
100. Ibid., 325.
101. Sokolovskiy (ed.), Voennaya strategiya (3rd ed., 1968), 336-337; V. Sokolovskiy and M. Cherednichenko, KZ, 28 August 1964; Tyushkevich, Sushko and Dzyuba (eds.), op. cit., 89.
102. M. Kozlov, "The Bloc of Aggression and War," KZ, 20 November 1979, p. 3; Sergey F. Akhromeev, "Dangerous U.S. Aspirations to Nuclear Supremacy," Horizont, No. 3, 1980, p. 3, translated in FBIS, USSR International Affairs, 28 January 1980, A41.

103. M.A. Mil'shteyn and L.S. Semeyko, "The Problem of the Inadmissibility of a Nuclear Conflict," SShA, No. 11, 1974, pp. 11-12; Lev Semeyko, "USA: 'Counterforce Strategy'," New Times, reproduced in Directorate of Soviet Affairs, Air Force Intelligence Service, Soviet Press: Selected Translations, AFRP 200-1, No.79*6, June 1979, p. 231; Latukhin, op. cit., 152; Surikov, Boevoe primeneniye raket sukhoputnykh voysk, 81-83.

104. P.I. Sergeev (ed.), Vooruzhennyye sily kapitalisticheskikh gosudarstv (1st ed., Moscow, 1971), 4-5.

105. A.A. Grechko, Na strazhe mira i stroitel'stva kommunizma (Moscow, 1971), 55; Grechko, "The CPSU and the Armed Forces," Kommunist, No. 4, 1971, p. 46; V. Kozlov and A. Skryl'nik, "One of the Most Important Tasks of Party and People," KVS, No. 13, 1971, p. 16; M. Cherednichenko, "Modern War and the Economy," KVS, No. 18, 1971, pp. 22-23; V.I. Morozov, "V.I. Lenin and the Creation of Soviet Military Science," in A.S. Milovidov and V.G. Kozlov (eds.), Filosofskoe nasledie V.I. Lenina i problemy sovremennoy voyny (Moscow, 1972), 136; P. Sidorov, "Foundations of Soviet Military Doctrine," Soviet Military Review, No. 9, 1972, p. 15; I. Pavlovskiy, "The Ground Troops," VM, No. 4, 1973, p. 27; I. Zav'yalov, "The Creative Nature of Soviet Military Doctrine," KZ, 19 April 1973, p. 3; L.I. Brezhnev speech to the Polish Sejm in July 1974, quoted in Yan Prazhski, "The Dialectics of International Detente," Problemy mira i sotsializma, No. 9, 1974, p. 84. For the equation of "general" nuclear war to "world" or "global" nuclear war, see Korotkov in Strokov (ed.), op. cit., 632; and P.I. Skuybeda, Tolkovyy slovar' voennykh terminov (Moscow, 1966), 221.

106. In a work sent for galleys in April 1971 and signed off to the press the following November, Colonel Strokov continued to refer to the inevitability of world nuclear war with the "unlimited use of nuclear weapons and their maximum use in the very first shattering strike;" see A.A. Strokov, V.I. Lenin o voyne i voennom iskusstve (Moscow, 1971), 175-176. However, this was a historical work published under the auspices of the Institute of Military History, and neither the author nor his sponsors may have been precisely up to date on doctrine. Since the publication of this book, I have encountered only one unambiguous reference to the inevitable escalation of a limited strategic exchange, by a group of authors who are otherwise unknown to me. See N. Petrov, N. Sokolov et al., op. cit., 46.

107. T. Kondrat'kov, "The Ominous Character of Militaristic Dogmas," KVS, No. 19, 1978, p. 80.

108. S. Taran, "The Leninist Theoretical Foundations of Soviet Military Strategy," VM, No. 6, 1971, p. 37.
109. V.V. Voznenko, "Military Strategy and Modern Means of Conducting Military Action," in N.A. Lomov, I.I. Anureev and M.I. Galkin (eds.), Voenno-tekhnicheskiy progress i revolyutsiya v voennom dele (Moscow, 1973), 138-139.
110. L. Semeyko, "New Forms, Old Content," KZ, 8 April 1975, p. 3.
111. M. Mil'shteyn, "Against the Spirit of the Times," Mirovaya ekonomika i mezhdunarodnye otnosheniya (hereafter MEMO), No. 7, 1976, p. 105.
112. R. Simonyan, "The Pentagon's Strategic Positions and the Security of Peoples," MEMO, No. 11, 1978, 21-22.
113. D. Ustinov, "Military Detente -- The Order of the Day," Pravda, 25 October 1979, p. 4.
114. Mil'shteyn and Semeyko, SShA, No. 11, 1974, p. 10.
115. Briefing on Counterforce Attacks, Hearing Before the Subcommittee on Arms Control, International Law and Organization of the Senate Foreign Relations Committee (Washington, D.C., GPO, 1975), 37-38.
116. Report of Secretary of Defense Harold Brown to the Congress on the FY 1980 Budget, FY 1981 Authorization Request and FY 1980-1984 Defense Programs, 25 January 1979, p. 110.
117. Yu. V. Katasonov, "U.S. Politico-Military Strategy at the Turn of the '70s and '80s," SShA, No. 2, 1980, p. 16.
118. E.I. Rybkin, "Socio-Political Consequences of the Revolution in Military Affairs," in Lomov, Anureev and Galkin (eds.), op. cit., 268-269.
119. Ibid., 260.
120. E.I. Rybkin, "Leninist Principles of the Sociological Analysis of Wars and the Present Day," in Milovidov and Kozlov (eds.), op. cit., 50.
121. I.A. Seleznev, Voyna i ideologicheskaya bor'ba (Moscow, 1964), 17; Strokov, V.I. Lenin o voyne i voennom iskusstve, 171.
122. Surikov, Boevoe primeneniye raket sukhoputnykh voysk, 82.

123. P.I. Trifonenkov, Ob osnovnykh zakonakh khoda i iskhoda sovremennoy voyny (Moscow, 1962), 5.
124. N. Lomov, "The New Weapons and the Nature of War," KZ, 7 January 1964.
125. A. Volkov and N. Zapara, "The Scientific-Technical Revolution in Military Affairs," KVS, No. 2, 1971, p. 11.
126. V. Baskakov, "On the Correlation Between War as a Social Phenomenon and the Armed Struggle," KVS, No. 1, 1971, p. 41.
127. S.P. Ivanov and M.M. Kir'yan, "The War's Initial Period," Sovetskaya Voennaya Entsiklopediya, V (1978), 558.
128. N.I. Krylov in Sovetskaya Moldaviya, 18 November 1970, p. 4; M. Grigor'ev, "The Law of Life is Constant Readiness," in A.N. Kulakov (compiler), Poveliteli strategicheskikh (Moscow, 1972), 5; A.A. Grechko, Vooruzhennye Sily Sovetskogo gosudarstva (2nd ed., Moscow, 1975), 353.
129. Shlomin, "On Guard Over Peace," in I.A. Kozlov and V.S. Shlomin, Severnyy flot (Moscow, 1966), 248-249; A.A. Grechko, "Always Be Ready to Defend the Socialist Fatherland," in N.I. Shablikov (ed.), Okean (Moscow, 1970), 8; N. Kulakov, "The Fatherland's Naval Renown," Leningradskaya pravda, 26 July 1970; N. Aleshkin, "Some Trends in the Development of Naval Forces," MS, No. 11, 1972, p. 30; K. Stalbo, "Naval Science: its Structure and Tasks," VM, No. 7, 1973, p. 57.
130. S.G. Gorshkov, "Historical Experience and the Present Day," Voprosy filosofii, No. 5, 1975, p. 37; S. Lobov, MS, No. 4, 1976, p. 103; S.G. Gorshkov, Morskaya moshch' gosudarstva (2nd ed., Moscow, 1979), 316-317; N. Zhukov, "U.S. Naval Forces: the Postwar Period," MS, No. 1, 1979, p. 69.
131. McConnell in McGwire and McDonnell (eds.), op. cit., 577.
132. I.S. Zheltikov, N.I. Bazanov, A.I. Karpov and I.A. Korotkov, "The Armed Forces of the USSR," in S.N. Kozlov (compiler) Spravochnik ofitsera (Moscow, 1971), 128-129.
133. I.I. Anureev, Oruzhie protivoraketnoy i protivokosmicheskoy oborony (Moscow, 1971), 3-4.
134. A.A. Grechko, Na strazhe mira i stroitel'stvo kommunizma, 41, 64.
135. Editorial, "The Tasks of Soviet Military Science in Light of the Decisions of the XXIV Congress of the CPSU," VM, No. 8, 1971, p. 7; I. Forofonov, "The XXIV Congress of the CPSU on

the Tasks of the Soviet Armed Forces at the Present Stage," KVS, No. 15, 1972, p. 77; V.I. Matveev, "Modern Requirements for Troop Combat Readiness," in Lomov, Anureev and Galkin (eds.), op. cit., 159-160; N.A. Lomov, "Conclusions," in ibid., 274.

136. I. Zheltikov, "The Soviet Armed Forces, Their Mission and Organization," KVS, No. 18, 1971, p. 65; V. Izmaylov, "The nature and Distinguishing Features of Modern Wars," KVS, No. 6, 1975, p. 73; V.I. Zemskov, Vidy vooruzhennykh sil i roda voysk (Moscow, 1975), 8; N. Shumikhin, "The Nature and Special Features of Modern Wars," KVS, No. 20, 1977, p. 87; Babakov, "The Development of the Soviet Armed Forces after World War II," in S.A. Tyushkevich, A.A. Babakov et al., Sovietskie Vooruzhennyye Sily (Moscow, 1978), 466; V. Bokarev, "The Armed Forces of the USSR in the Postwar Period," KVS, No. 12, 1979, p. 73; V.F. Tolubko, "The Strategic Missile Troops," Sovetskaya Voennaya Entsiklopediya, VII (1979), 53.
137. A.A. Grechko, "An Army Socialist and Multinational," KZ, 17 December 1972, p. 2.
138. G. Lukava, "The XXIV Congress of the CPSU on Further Raising the Combat Readiness of the Army and Navy," MS, No. 6, 1975, p. 10; Gorshkov, Morskaya moshch' gosudarstva (1st ed., 1976), 360; ibid., (2nd ed., 1979), 324; Gorshkov, Voenno-Morskoy Flot (Moscow, 1977), 48-49.
139. B. Makeev, "Arms and the Naval Art," MS, No. 2, 1977, p. 17.
140. Gorshkov, Morskaya moshch' gosudarstva (2nd ed., 1979), 331; N. V'yunenko, "The Scientific-Technical Revolution and the Fleet," MS, No. 11, 1973, p. 25; S. Gorshkov, "Certain Problems in Developing the Naval Art," MS, No. 12, 1974, p. 24.
141. A.A. Shirman, "The Social Activism of the Masses and the Defense of Socialism," in Milovidov and Kozlov (eds.), op. cit., 171-174.
142. V.A. Belli, Deystviya flotov na severnom, sredizemno-morskom i okeanskikh teatrakh, Volume II of N.B. Pavlovich (ed.), Flot v pervoy mirovoy voyne (2 vols., Moscow, 1964), 118-120, 323.
143. V. Kasatonov, VM, No. 2, 1969, p. 33.
144. Gorshkov, "Navies in War and Peace," MS, No. 5, 1972, pp 15-16; Gorshkov, Morskaya moshch' gosudarstva (1st ed., 1976), 162-163.
145. Ibid., 249-250.

146. See McConnell in MccGwire and McDonnell (eds.), op. cit., 587-589.
147. Gorshkov, MS, No. 5, 1972, p. 22. Gorshkov also notes of the American Revolution that "England was obliged to recognize the independence of the United States of North America after she had lost several engagements on land and then taken account of the unfavorable correlation of forces at sea" (MS, No. 2, 1972, p. 27).
148. Ibid., 20.
149. McConnell in MccGwire and McDonnell (eds.), op. cit., 592-594.
150. V.I. Surabekov, MS, No. 6, 1969, p. 30.
151. M.S. Shifman, Voyna i ekonomiki (Moscow, 1964), 56-58, 60, 84, 87; V.G. Efremenko, "The Development and Improvement of Anti-submarine Forces and their Tactics," MS, No. 10, 1970, p. 17.
152. McConnell in MccGwire and McDonnell (eds.), op. cit., 594-595.
153. Zemskov, VM, No. 7, 1969, pp. 20-22.
154. S.A. Tyushkevich, Filosofiya i voennaya teoriya (Moscow, 1975), 161-162; R. Simonyan, "Wars Through the Eyes of the Pentagon," KZ, 27 May 1976; Surikov, Boevoe primeneniye raket sukhoputnykh voysk, 77.
155. "A Readers' Conference in the Twice Red-Banner Baltic Fleet," VM, No. 9, 1973, pp. 95-96.
156. The official significance of the expressions "common views" or "unity of views" was first pointed out by Matthew Gallagher. See my discussion in MccGwire and McDonnell (eds.), op. cit., 606-607.
157. Some of Balev's targets are obvious, e.g., Kharlamov, MS, No. 1, 1966, p. 35f; and especially Stalbo in S.E. Zakharov (ed.), op. cit., 540.
158. B. Balev, "Sea and Ocean Communications and Combat on Them," VM, No. 10, 1971, pp. 41-43.
159. Each make three points: (a) yes, there are a lot of very destructive nuclear weapons; but (b) all of them do not have to be used (Shirman), at least not at the beginning (Balev); and besides (c) the future might see a successful defense against them.

160. Balev, op. cit., 43.
161. Zimin (ed.), op. cit., 62.
162. See the reference by Taran, op. cit., p. 38 to "the intermediate tasks of military action;" also Admiral Gorshkov's distinction between "the operation, the campaign and the war as a whole" (Morskaya moshch' gosudarstva, 1st ed., p. 7). In the second edition (p. 8), apparently fearful that his remarks would be taken as having only historical rather than current relevance, Gorshkov interpolated that "this proposition manifests itself with special force in the present-day context...." Gorshkov's reference to "the operation, the campaign and the war as a whole" might be contrasted with Colonel Skuybeda's 1966 reference (op. cit., 382), in the context of an unlimited world nuclear war, to "the tactical battle, the operation and the armed struggle as a whole."
163. S. Ivanov, "The Initial Period of War," VM, No. 5, 1971, pp. 36-37; A. Grechko, "Defeating the Strike Forces of Imperialism," VM, No. 6, 1971, p. 9.
164. K. Cheremukhin, "The Initial Period of War," VIZ, No. 11, 1975, p. 115.
165. See S.P. Ivanov (ed.), Nachal'nyy period voyny (Moscow, 1974), passim, but especially the "introduction" by Ivanov and articles by N.A. Fokin, N.G. Pavlenko, N.I. Gutchenko, L.I. Ol'shtynskiy and A.E. Sopil'nik, pp. 5-8, 33, 35, 39, 51, 54, 63-64, 97-107, 121-122, 138, 143, 182, 219-220, 282, 324, 343-351.
166. Articles by Fokin and Pavlenko in ibid., 72, 87, 203-204, 238, 273, 278-280, 348-351.
167. Raymond Garthoff, "Mutual Deterrence and Strategic Arms Limitation in Soviet Policy," International Security, III, No. 1, 1978, pp. 112ff.
168. Aleksandr Bovin, in a Moscow broadcast of 19 June 1979, as published in Survival, September/October 1979, pp. 213-214; also see M.A. Mil'shteyn, "Some Aspects of Present-Day U.S. Military Doctrine," SShA, No. 5, 1980, pp. 11-12.
169. V. Kortunov, "Baneful Relapses in the Policy of Force," Komunist, No. 10, 1980, p. 99.
170. Ibid., 96-97.
171. Milovidov and Kozlov (eds.), op. cit., 42.

172. V. Petrovskiy, "Concepts of Force and Their Evolution," MEMO, No. 4, 1979, pp. 37-38.
173. See, for example, Simonyan, Voennye bloki imperializma, 48.
174. McConnell, in MccGwire and McDonnell (eds.), op. cit., 586-587, 590-591.
175. Klaas G. de Vries, "Responding to the SS-20: an Alternative Approach," Survival, November/December 1979, 252-253; Jan M. Lodal, "SALT II and American Security," Foreign Affairs, Vol. 57, No. 2 (winter 1978/1979), 259; Gregory F. Treverton, "Nuclear Weapons and the 'Gray Area'," ibid., summer 1979, p. 1078.
176. FBIS, Daily Report: Western Europe, VII, 27 November 1977, pp. P1-P2.
177. Treverton, op. cit., 1078.
178. See McConnell in MccGwire and McDonnell (eds.), op. cit., 604-614; McConnell and Dismukes, "Conclusions," in Dismukes and McConnell (eds.), op. cit., footnote 26 on p. 314.
179. Sokolovskiy (ed.), Voennaya strategiya (3rd ed., 1968), 236, 335.
180. Gorshkov, Morskaya moshch' gosudarstva (1st ed., 1976), 106-107; ibid. (2nd ed., 1979), 95.
181. "On Certain New Trends in the Development of American Military-Strategic Concepts," SShA, No. 4, 1976, p. 122. Mil'shteyn repeated his statement in MEMO, No. 7, 1976, p. 105.
182. Trofimenko, "The Evolution of American Military-Policy Thinking," in G.A. Trofimenko (ed.), Sovremennye vneshno-politicheskie kontseptsii SShA, (Moscow, 1979), 115.
183. SShA, No. 4, 1976, p. 124.
184. Ibid., 125.
185. R. Simonyan, KZ, 27 May 1976; Latukhin, op. cit., 149-150; Surikov, Boevoe primeneniye raket sukhoputnykh voysk, 76-77.
186. K.P. Kazakov (ed.), Artilleriya i rakety (Moscow, 1968), 224-225; Aleshkov, "Combat Use of Missile Weapons with Various Missions," in M.N. Aleshkov, I.I. Zhukov et al., Fizicheskie osnovy raketnogo oruzhiya (Moscow, 1972), 8.

187. Interview with Simonyan by Novosti Press Agency correspondent Vladimir Ostrovskiy, Novosti Daily Review, 24 September 1979, reprinted in Joint Publications Research Service, USSR Report: Political and Sociological Affairs, No. 983, JPRS 74415, 22 October 1979, pp. 2-3. See also R. Simonyan, "Dangerous Concepts," Pravda, 12 December 1979, p. 4.
188. Simonyan, KZ, 27 May 1976; Surikov, Boevoe primeneniye raket sukhoputnykh voysk, 76.
189. Simonyan, Voennye bloki imperializma, 49; M. Mil'shteyn, "Tactical Nuclear Weapons: Problems of Definition and Application," in Stockholm International Peace Research Institute, Tactical Nuclear Weapons, 170-171.
190. Simonyan, KZ, 27 May 1976.
191. Simonyan did not say "will be waged;" the infinitive vestis' rather goes back to mozhet (mozhet...vestis') and it goes directly back to mozhet, ignoring everything in between. That is, the adverb "only" (tol'ko) does not modify how the war is waged, which would be the case if it had preceded vozniknut'; it modifies exclusively the way the war arises, since it follows vozniknut'.
192. R. Simonyan, "On the Risks of Confrontation," Pravda, 14 June 1977, p. 4; R. Simonyan, MEMO, No. 11, 1978, p. 18. See also Simonyan, Pravda, 19 March 1979, p. 4.
193. Latukhin, op. cit., 150, 152; Surikov, Boevoe primeneniye raket sukhoputnykh voysk, 77, 81-83.
194. P.I. Sergeev, Vooruzhennyye sily kapitalisticheskikh gosudarstv (2nd ed., 1979), 195, 198.
195. R. Simonyan, Pravda, 12 December 1979, p. 4; L. Semeyko, "The Wager on a First-Strike Potential," KZ, 8 August 1980.
196. L. Semeyko, "The Eurostrategy Target," KZ, 28 October 1979, p. 3; interview with Simonyan by Ostrovskiy, op. cit., 2-3.
197. Semeyko, KZ, 28 October 1979, p. 3; Ostrovskiy interview with Simonyan, op. cit., 2-3; R. Simonyan, "The Dangerous Concepts of NATO 'Eurostrategists'," KZ, 28 December 1979, p. 3.
198. R. Simonyan, "The 'Nuclear Strategy' of the U.S. and NATO," Zarubezhnoye voennoye obozreniye, No. 6, 1980, p. 10.
199. Yu. V. Katasonov, SShA, No. 2, 1980, p. 17.
200. Mil'shteyn in Stockholm International Peace Research Institute, Tactical Nuclear Weapons, 172-173.

201. Semeyko, KZ, 28 October 1979, p. 3.
202. Ostrovskiy interview with Simonyan, op. cit., 2-3.
203. I. Sidel'nikov, "Who It Is That Needs Military Superiority and For What," KZ, 15 January 1980, p. 3.
204. D. Ustinov, Pravda, 25 October 1979, p. 4.
205. Sergey Akhromeev, "What is Behind the Pentagon's Concept of 'Strategic Sufficiency'," Novosti Daily News, 24 December 1979, republished in Joint Publications Research Service, USSR: Report: Military Affairs, No. 1490, JPRS 74976, 22 January 1980, p. 47. See also S.F. Akhromeev in FBIS, USSR International Affairs, III, 28 January 1980, pp. AA2-AA3; V. Pustov, "Missile Fever in NATO," KZ, 19 August 1980, p. 3; M. Ponomarev, "NATO is Playing With Fire," KZ, 21 October 1979, p. 3; TASS, "A Most Important Factor of Peace and Security," KZ, 23 October 1979, p. 3; Katasonov, SShA, No. 2, 1980, p. 19.
206. Heinz Vielain, "Secret Details of the Moscow Talks," Die Welt, 7 July 1980, pp. 1-2, translated in FBIS, Daily Report: Western Europe, VII, 8 July 1980, p. J14.
207. "Brezhnev Opposes Missile Shift in West," Baltimore Sun, 5 October 1979.
208. Latukhin, op. cit., 33.
209. Harold Brown, Department of Defense Annual Report FY 1979 (February 1978), 69; International Institute for Strategic Studies (IISS), The Military Balance 1972-1973 (London, 1972), 10-13.
210. Simonyan, KZ, 27 May 1976.
211. Sergeev (ed.), Vooruzhennye sily kapitalisticheskikh gosudarstv (2nd ed., 1979), 196.
212. Simonyan, Voennye bloki imperializma, 50.
213. KZ, 27 May 1976.
214. D. Samorukov, "Combat Action with the Use of Conventional Means of Destruction," VM, No. 8, 1967, pp. 30-34, 40-41; V. Zemskov, VM, No. 7, 1969, p. 23.
215. M.M. Kir'yan, "The Operation," Sovetskaya Voennaya Entsiklopediya, VI, 66.
216. McConnell in Dismukes and McConnell (eds.), op. cit., 24.

217. Krylov, VM, No. 11, 1967, p. 20; S. Shtrik, "Encircling and Wiping Out an Opponent When Conducting Combat Action Without the Use of Nuclear Weapons," VM, No. 1, 1968, p. 58; Vasendin and Kuznetsov, VM, No. 6, 1968, p. 44; P. Shkarubskiy, "Artillery in Modern Combat Action by Ground Troops," ibid., 61; S.N. Kozlov and N. Ya. Susko, "Methodological Functions of the Marxist-Leninist Teaching on War and the Navy," in Tyushkevich, Sushko and Dzyuba (eds.), op. cit., 292; G. Semenov and V. Prokhorov, "Scientific-Technical Progress and Certain Problems of Strategy," VM, No. 2, 1969, p. 27; M. Men'shov, "The Armed Forces of the USSR in the Postwar Period," KVS, No. 14, 1972, p. 72; Grechko, Vooruzhennye sily Sovetskogo gosudarstva (1st ed., 1974), 191-192.
218. A. Volkov, "For What Kind of War is NATO Preparing?," KZ, 3 January 1968, p. 3; S.A. Tyushkevich in Tyushkevich, Sushko and Dzyuba (eds.), op. cit., 292; P. Kutakhov, "The Air Forces Past and Present," VM, No. 10, 1973, p. 20.
219. "Military Action," Sovetskaya Voennaya Entsiklopediya, II, 260; "Combat Action," ibid., I, 539. I am indebted to Theodore Neely for calling these entries to my attention.
220. I. Zav'yalov, "New Weapons and the Military Art," KZ, 30 October 1970, pp. 2-3.
221. S.S. Lototskiy et al., Armiya Sovetskaya (Moscow, 1969), 418.
222. Simonyan, KZ, 27 May 1976.
223. A. Gontaev, MS, No. 2, 1978, p. 116. Simonyan even says at one point that the hope of the Pentagon and NATO that a tactical-nuclear war in Europe "will not escalate into a general war," while "purely theoretically" tenable, "is practically excluded." (Pravda, 14 June 1977, p. 4). However, this passage is not without its ambiguities. Was "general war" meant in the "Pentagon" sense (world war) or in the "NATO" sense (which could include a Eurostrategic war)? Further, are we to understand "practically" to mean "almost entirely" or "virtually," or in the sense of "in practice," as we might expect from its appearance in opposition to "theoretically?"
224. Simonyan, KZ, 27 May 1976; Simonyan, Voennye bloki imperializma, 50; Surikov, Boevoe primeneniye raket sukhoputnykh voysk, 80.
225. KZ, 27 May 1976.
226. IISS, The Military Balance 1979-1980 (London, 1979), 59.

227. Shavrov and Galkin (eds.), op. cit., 59-60, 240, 254; Simonyan, "The 'Nuclear Threshold' in NATO Strategy," Pravda, 25 May 1978, p. 4; Babakov in Tyushkevich, Babakov et al., op cit., 477-478; Simonyan, KZ, 28 December 1979, p. 3; N.V. Ogarkov, "Military Strategy," Sovetskaya Voennaya Entsiklopediya, VII (1979), 564.
228. Ibid., 563.

CNA PROFESSIONAL PAPERS - 1978 TO PRESENT*

- PP 211
Mizrahi, Maurice M., "On Approximating the Circular Coverage Function," 14 pp., Feb 1978, AD A054 429
- PP 212
Mangel, Marc, "On Singular Characteristic Initial Value Problems with Unique Solution," 20 pp., Jun 1978, AD A058 535
- PP 213
Mangel, Marc, "Fluctuations in Systems with Multiple Steady States. Application to Lanchester Equations," 12 pp., Feb 78 (Presented at the First Annual Workshop on the Information Linkage Between Applied Mathematics and Industry, Naval PG School, Feb 23-25, 1978), AD A071 472
- PP 214
Weinland, Robert G., "A Somewhat Different View of The Optimal Naval Posture," 37 pp., Jun 1978 (Presented at the 1976 Convention of the American Political Science Association (APSA/IUS Panel on "Changing Strategic Requirements and Military Posture"), Chicago, Ill., September 2, 1976), AD A056 228
- PP 215
Colle, Russell C., "Comments on: Principles of Information Retrieval by Manfred Kochen," 10 pp., Mar 78 (Published as a Letter to the Editor, Journal of Documentation, Vol. 31, No. 4, pages 298-301), December 1975), AD A054 426
- PP 216
Colle, Russell C., "Lotka's Frequency Distribution of Scientific Productivity," 18 pp., Feb 1978 (Published in the Journal of the American Society for Information Science, Vol. 28, No. 6, pp. 366-370, November 1977), AD A054 425
- PP 217
Colle, Russell C., "Bibliometric Studies of Scientific Productivity," 17 pp., Mar 78 (Presented at the Annual meeting of the American Society for Information Science held in San Francisco, California, October 1976), AD A054 442
- PP 218 - Classified
- PP 219
Hentzinger, R. LeVer, "Market Analysis with Rational Expectations: Theory and Estimation," 60 pp., Apr 78, AD A054 422
- PP 220
Maurer, Donald E., "Diagonalization by Group Matrices," 26 pp., Apr 78, AD A054 443
- PP 221
Weinland, Robert G., "Superpower Naval Diplomacy in the October 1973 Arab-Israeli War," 76 pp., Jun 1978 (Published in Seapower in the Mediterranean: Political Utility and Military Constraints, The Washington Papers No. 61, Beverly Hills and London: Sage Publications, 1979) AD A055 564
- PP 222
Mizrahi, Maurice M., "Correspondence Rules and Path Integrals," 30 pp., Jun 1978 (Invited paper presented at the CNRS meeting on "Mathematical Problems in Feynman's Path Integrals," Marseille, France, May 22-26, 1978) (Published in Springer Verlag Lecture Notes in Physics, 106, (1979), 234-253) AD A055 536
- PP 223
Mangel, Marc, "Stochastic Mechanics of Molecule-Molecule Reactions," 21 pp., Jun 1978, AD A056 227
- PP 224
Mangel, Marc, "Aggregation, Bifurcation, and Extinction in Exploited Animal Populations," 48 pp., Mar 1978, AD A058 536
"Portions of this work were started at the Institute of Applied Mathematics and Statistics, University of British Columbia, Vancouver, B.C., Canada
- PP 225
Mangel, Marc, "Oscillations, Fluctuations, and the Hopf Bifurcation," 43 pp., Jun 1978, AD A058 537
"Portions of this work were completed at the Institute of Applied Mathematics and Statistics, University of British Columbia, Vancouver, Canada.
- PP 226
Reiston, J. M. and J. W. Menn,* "Temperature and Current Dependence of Degradation in Red-Emitting GaP LEDs," 34 pp., Jun 1978 (Published in Journal of Applied Physics, 50, 3630, May 1979) AD A058 538
*Bell Telephone Laboratories, Inc.
- PP 227
Mangel, Marc, "Uniform Treatment of Fluctuations at Critical Points," 50 pp., May 1978, AD A058 539
- PP 228
Mangel, Marc, "Relaxation at Critical Points: Deterministic and Stochastic Theory," 34 pp., Jun 1978, AD A058 540
- PP 229
Mangel, Marc, "Diffusion Theory of Reaction Rates, I: Formulation and Einstein-Smoluchowski Approximation," 50 pp., Jan 1978, AD A058 541
- PP 230
Mangel, Marc, "Diffusion Theory of Reaction Rates, II Ornstein-Uhlenbeck Approximation," 34 pp., Feb 1978, AD A058 542
- PP 231
Wilson, Desmond P., Jr., "Naval Projection Forces: The Case for a Responsive MAF," Aug 1978, AD A054 543
- PP 232
Jacobson, Louis, "Can Policy Changes Be Made Acceptable to Labor?" Aug 1978 (Submitted for publication in Industrial and Labor Relations Review), AD A061 528

*CNA Professional Papers with an AD number may be obtained from the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22151. Other papers are available from the Management Information Office, Center for Naval Analysis, 2000 North Beauregard Street, Alexandria, Virginia 22311. An Index of Selected Publications is also available on request. The Index includes a Listing of Professional Papers; with abstracts; issued from 1969 to June 1981.

- PP 233
Jacobson, Louis, "An Alternative Explanation of the Cyclical Pattern of Quits," 23 pp., Sep 1978
- PP 234 - Revised
Jondrou, James and Levy, Robert A., "Does Federal Expenditure Displace State and Local Expenditure: The Case of Construction Grants," 25 pp., Oct 1979, AD A061 529
- PP 235
Mizrahi, Maurice M., "The Semiclassical Expansion of the Anharmonic-Oscillator Propagator," 41 pp., Oct 1978 (Published in Journal of Mathematical Physics 20 (1979) pp. 844-855), AD A061 538
- PP 237
Maurer, Donald, "A Matrix Criterion for Normal Integral Bases," 10 pp., Jan 1979 (Published in the Illinois Journal of Mathematics, Vol. 22 (1978), pp. 672-681)
- PP 238
Utgoft, Kathleen Classen, "Unemployment Insurance and The Employment Rate," 20 pp., Oct 1978 (Presented at the Conference on Economic Indicators and Performance: The Current Dilemma Facing Government and Business Leaders, presented by Indiana University Graduate School of Business), AD A061 527
- PP 239
Troost, R. P. and Warner, J. T., "The Effects of Military Occupational Training on Civilian Earnings: An Income Selectivity Approach," 38 pp., Nov 1979k, AD A077 831
- PP 240
Powers, Bruce, "Goals of the Center for Naval Analyses," 13 pp., Dec 1978, AD A063 759
- PP 241
Mangel, Marc, "Fluctuations at Chemical Instabilities," 24 pp., Dec 1978 (Published in Journal of Chemical Physics, Vol. 69, No. 8, Oct 15, 1978), AD A063 787
- PP 242
Simpson, William R., "The Analysis of Dynamically Interactive Systems (Air Combat by the Numbers)," 160 pp., Dec 1978, AD A063 760
- PP 243
Simpson, William R., "A Probabilistic Formulation of Murphy Dynamics as Applied to the Analysis of Operational Research Problems," 18 pp., Dec 1978, AD A063 761
- PP 244
Sherman, Allan and Morowitz, Stanley A., "Maintenance Costs of Complex Equipment," 20 pp., Dec 1978 (Published By The American Society of Naval Engineers, Naval Engineers Journal, Vol. 91, No. 6, Dec 1979) AD A071 473
- PP 245
Simpson, William R., "The Accelerometer Methods of Obtaining Aircraft Performance from Flight Test Data (Dynamic Performance Testing)," 403 pp., Jun 1979, AD A075 226
- PP 246
Brechling, Frank, "Layoffs and Unemployment Insurance," 35 pp., Feb 1979 (Presented at the Nber Conference on "Low Income Labor Markets," Chicago, Jun 1978), AD A096 629
- PP 248
Thomas, James A., Jr., "The Transport Properties of Dilute Gases in Applied Fields," 183 pp., Mar 1979, AD A096 464
- PP 249
Glaeser, Kenneth S., "A Secretary Problem with a Random Number of Choices," 23 pp., Mar 1979
- PP 250
Mangel, Marc, "Modeling Fluctuations in Macroscopic Systems," 26 pp., Jun 1979
- PP 251
Troost, Robert P., "The Estimation and Interpretation of Several Selectivity Models," 37 pp., Jun 1979, AD A075 941
- PP 252
Nunn, Walter R., "Position Finding with Prior Knowledge of Covariance Parameters," 5 pp., Jun 1979 (Published in IEEE Transactions on Aerospace & Electronic Systems, Vol. AES-15, No. 3, Mar 1979)
- PP 253
Glaeser, Kenneth S., "The d-Choice Secretary Problem," 32 pp., Jun 1979, AD A075 225
- PP 254
Mangel, Marc and Quanbeck, David B., "Integration of a Bivariate Normal Over an Offset Circle," 14 pp., Jun 1979, AD A096 471
- PP 255 - Classified, AD 8051 441L
- PP 256
Maurer, Donald E., "Using Personnel Distribution Models," 27 pp., Feb 1980, AD A082 218
- PP 257
Thaler, R., "Discounting and Fiscal Constraints: Why Discounting is Always Right," 10 pp., Aug 1979, AD A075 224
- PP 258
Mangel, Marc S. and Thomas, James A., Jr., "Analytical Methods in Search Theory," 86 pp., Nov 1979, AD A077 832
- PP 259
Glaeser, David V.; Hsu, Ih-Ching; Nunn, Walter R., and Perin, David A., "A Class of Commutative Markov Matrices," 17 pp., Nov 1979, AD A077 833
- PP 260
Mangel, Marc S. and Cope, Davis K., "Detection Rate and Sweep Width in Visual Search," 14 pp., Nov 1979, AD A077 834
- PP 261
Villa, Carlos L.; Zvijec, David J. and Ross, John, "Frank-Condon Theory of Chemical Dynamics. VI. Angular Distributions of Reaction Products," 14 pp., Nov 1979 (Reprinted from Journal Chemical Phys. 70(12), 15 Jun 1979), AD A076 287
- PP 262
Peterson, Charles C., "Third World Military Elites in Soviet Perspective," 50 pp., Nov 1979, AD A077 835
- PP 263
Robinson, Kathy L., "Using Commercial Tankers and Container-ships for Navy Underway Replenishment," 25 pp., Nov 1979, AD A077 836

- PP 264
Weinland, Robert G., "The U.S. Navy in the Pacific: Past, Present, and Glimpses of the Future," 31 pp., Nov 1979 (Delivered at the International Symposium on the Sea, sponsored by the International Institute for Strategic Studies, The Brookings Institution and the Yomiuri Shimbun, Tokyo, 16-20 Oct 1978) AD A066 837
- PP 265
Weinland, Robert G., "War and Peace in the North: Some Political implications of the Changing Military Situation in Northern Europe," 18 pp., Nov 1979 (Prepared for presentation to the Conference of the Nordic Balance in Perspective: The Changing Military and Political Situation," Center for Strategic and International Studies, Georgetown University, Jun 15-16, 1978) AD A077 838
- PP 266
Utgoff, Kathy Classen, and Brechling, Frank, "Taxes and Inflation," 23 pp., Nov 1979, AD A081 194
- PP 267
Trost, Robert P., and Vogel, Robert C., "The Response of State Government Receipts to Economic Fluctuations and the Allocation of Counter-Cyclical Revenue Sharing Grants," 12 pp., Dec 1979 (Reprinted from the Review of Economics and Statistics, Vol. LXI, No. 3, August 1979)
- PP 268
Thomason, James S., "Seaport Dependence and Inter-State Cooperation: The Case of Sub-Saharan Africa," 141 pp., Jan 1980, AD A081 195
- PP 269
Weiss, Kenneth G., "The Soviet Involvement in the Ogaden War," 42 pp., Jan 1980 (Presented at the Southern Conference on Slavic Studies in October, 1979), AD A082 219
- PP 270
Remnek, Richard, "Soviet Policy in the Horn of Africa: The Decision to Intervene," 52 pp., Jan 1980 (To be published in "The Soviet Union in the Third World: Success or Failure," ed. by Robert M. Donaldson, Westview Press, Boulder, Co., Summer 1980), AD A081 195
- PP 271
McConnell, James, "Soviet and American Strategic Doctrines: One More Time," 43 pp., Jan 1980, AD A081 192
- PP 272
Weiss, Kenneth G., "The Azores in Diplomacy and Strategy, 1940-1945," 46 pp., Mar 1980, AD A085 094
- PP 273
Nakade, Michael K., "Labor Supply of Wives with Husbands Employed Either Full Time or Part Time," 39 pp., Mar 1980, AD A082 220
- PP 274
Nunn, Walter R., "A Result in the Theory of Spiral Search," 9 pp., Mar 1980
- PP 275
Goldberg, Lawrence, "Recruiters Advertising and Navy Enlistments," 34 pp., Mar 1980, AD A082 221
- PP 276
Goldberg, Lawrence, "Delaying an Overhaul and Ship's Equipment," 40 pp., May 1980, AD A085 095
- PP 277
Mangel, Marc, "Small Fluctuations in Systems with Multiple Limit Cycles," 19 pp., Mar 1980 (Published in SIAM J. Appl. Math., Vol. 38, No. 1, Feb 1980) AD A086 229
- PP 278
Mizrahi, Maurice, "A Targeting Problem: Exact vs. Expected-Value Approaches," 23 pp., Apr 1980, AD A085 096
- PP 279
Walt, Stephen M., "Causal Inferences and the Use of Force: A Critique of Force Without War," 50 pp., May 1980, AD A085 097
- PP 280
Goldberg, Lawrence, "Estimation of the Effects of A Ship's Steaming on the Failure Rate of its Equipment: An Application of Econometric Analysis," 25 pp., Apr 1980, AD A085 098
- PP 281
Mizrahi, Maurice M., "Comment on 'Discretization Problems of Functional Integrals in Phase Space'," 2 pp., May 1980, published in "Physical Review D", Vol. 22 (1980), AD A094 994
- PP 283
Dimmukes, Bradford, "Expected Demand for the U.S. Navy to Serve as An Instrument of U.S. Foreign Policy: Thinking About Political and Military Environmental Factors," 30 pp., Apr 1980, AD A085 099
- PP 284
J. Kellison,* W. Nunn, and U. Sumits,** "The Laguerre Transform," 119 pp., May 1980, AD A085 100
*The Graduate School of Management, University of Rochester and the Center for Naval Analyses
**The Graduate School of Management, University of Rochester
- PP 285
Remnek, Richard B., "Superpower Security Interests in the Indian Ocean Area," 26 pp., Jun 1980, AD A087 113
- PP 286
Mizrahi, Maurice M., "On the WKB Approximation to the Propagator for Arbitrary Hamiltonians," 23 pp., Aug 1980 (Published in Journal of Math. Phys., 22(1) Jan 1981), AD A091 307
- PP 287
Cope, Davis, "Limit Cycle Solutions of Reaction-Diffusion Equations," 35 pp., Jun 1980, AD A087 114
- PP 288
Golsman, Walter, "Don't Let Your Slides Flip You: A Painless Guide to Visuals That Really Aid," 28 pp., (revised Aug 1982), AD A092 732
- PP 289
Robinson, Jack, "Adequate Classification Guidance - A Solution and a Problem," 7 pp., Aug 1980, AD A091 212
- PP 290
Watson, Gregory H., "Evaluation of Computer Software in an Operational Environment," 17 pp., Aug 1980, AD A091 213
- PP 291
Maddala, G. S.,* and Trost, R. P., "Some Extensions of the Harlove Press Model," 17 pp., Oct 1980, AD A091 946
*University of Florida

- PP 292
Thomas, James A., Jr., "The Transport Properties of Binary Gas Mixtures in Applied Magnetic Fields," 10 pp., Sep 1980 (Published in Journal of Chemical Physics 72(10), 15 May 1980)
- PP 293
Thomas, James A., Jr., "Evaluation of Kinetic Theory Collision Integrals Using the Generalized Phase Shift Approach," 12 pp., Sep 1980 (Printed in Journal of Chemical Physics 72(10), 15 May 1980)
- PP 294
Roberts, Stephen S., "French Naval Policy Outside of Europe," 30 pp., Sep 1980 (Presented at the Conference of the Section on Military Studies, International Studies Association, Kilauea Island, S.C.), AD A091 306
- PP 295
Roberts, Stephen S., "An Indicator of Informal Empire: Patterns of U.S. Navy Cruising on Overseas Stations, 1869-1897," 40 pp., Sep 1980 (Presented at Fourth Naval History Symposium, US Naval Academy, 26 Oct 1979), AD A091 316
- PP 296
Dimukes, Bradford, and Peterson, Charles C., "Maritime Factors Affecting Iberian Security," (Factores Maritimos que Afectan la Seguridad Iberica) 14 pp., Oct 1980, AD A092 733
- PP 297 - Classified
- PP 298
Mizrahi, Maurice M., "A Markov Approach to Large Missile Attacks," 31 pp., Jan 1981, AD A096 159
- PP 299
Jondrow, James M., and Levy, Robert A., "Wage Leadership in Construction," 19 pp., Jan 1981, AD A094 797
- PP 300
Jondrow, James, and Schmidt, Peter, "On the Estimation of Technical Inefficiency in the Stochastic Frontier Production Function Model," 11 pp., Jan 1981, AD A096 160
Michigan State University
- PP 301
Jondrow, James M.; Levy, Robert A.; and Hughes, Claire, "Technical Change and Employment in Steel, Autos, Aluminum, and Iron Ore," 17 pp., Mar 1981, AD A099 394
- PP 302
Jondrow, James M., and Levy, Robert A., "The Effect of Imports on Employment Under Rational Expectations," 19 pp., Apr 1981, AD A099 392
- PP 303
Thomson, James, "The Rarest Commodity in the Coming Resource Wars," 3 pp., Aug 1981 (Published in the Washington Star, 13 Apr 1981), AD A104 221
- PP 304
Duffy, Michael K.; Greenwood, Michael J.; and McDowell, John M., "A Cross-Sectional Model of Annual Interregional Migration and Employment Growth: Intertemporal Evidence of Structural Change, 1958-1975," 31 pp., Apr 1981, AD A099 393
University of Colorado
Arizona State University
- PP 305
Nunn, Laura M., "An Introduction to the Literature of Search Theory," 32 pp., Jun 1981, AD A100 420
- PP 306
Anger, Thomas E., "What Good Are Warfare Models?" 7 pp., May 1981, AD A100 421
- PP 307
Thomson, James, "Dependence, Risk, and Vulnerability," 43 pp., Jun 1981, AD A102 698
- PP 308
Mizrahi, M.M., "Correspondence Rules and Path Integrals," 17 pp., Jul 1981. (Published in "Nuovo Cimento B", Vol. 61, 1981), AD A102 699
- PP 309
Weinland, Robert G., "An (The?) Explanation of the Soviet Invasion of Afghanistan," 44 pp., May 1981, AD A100 422
- PP 310
Stanford, Janette M., and Wu, Tai To, "A Predictive Method for Determining Possible Three-dimensional Foldings of Immunoglobulin Backbones Around Antibody Combining Sites," 19 pp., Jun 1981 (Published in J. Theor. Biol., 1981), 88, AD A100 425
Northwestern University
- PP 311
Boves, Marianne, Brechling, Frank P. R.; and Utgoff, Kathleen P. Classen, "An Evaluation of UI Funds," 13 pp., May 1981 (Published in National Commission on Unemployment Compensation's "Unemployment Compensation: Studies and Research," Volume 2, Jul 1980), AD A100 424
- PP 312
Jondrow, James; Boves, Marianne; and Levy, Robert, "The Optimum Speed Limit," 23 pp., Jul 1983 (Revised), AD A100 425
- PP 313
Roberts, Stephen S., "The U.S. Navy in the 1980s," 36 pp., Jul 1981, AD A102 696
- PP 314
Jahn, Christopher; Horowitz, Stanley A.; and Lockman, Robert F., "Examining the Draft Debate," 20 pp., Jul 1981, AD A106 192
- PP 315
Buck, Ralph V. (Capt., USN), "Le Catastrophe by any other name....," 4 pp., Jul 1981, AD A102 697
- PP 316
Roberts, Stephen S., "Western European and NATO Navies, 1980," 20 pp., Aug 1981, AD A104 223
- PP 317
Roberts, Stephen S., "Superpower Naval Crisis Management in the Mediterranean," 35 pp., Aug 1981, AD A104 222
- PP 318
Vego, Milan M., "Yugoslavia and the Soviet Policy of Force in the Mediterranean Since 1961," 187 pp., Aug 1981

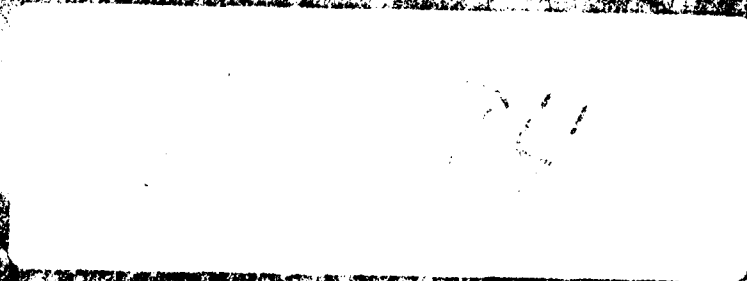
- PP 319
Smith, Michael W., "Antiair Warfare Defense of Ships at Sea," 46 pp., Sep 1981 (This talk was delivered at the Naval Warfare System and Technology Conference of the American Institute of Aeronautics and Astronautics in Washington on 12 Dec 1980; in Boston on 20 Jan 1981; and in Los Angeles on 12 Jun 1981.), AD A106 191
- PP 320
Trost, R. P.; Lurie, Philip; and Berger, Edward, "A Note on Estimating Continuous Time Decision Models," 15 pp., Sep 1981, AD A106 193
- PP 321
Duffy, Michael K., and Ledman, Jerry R., "The Simultaneous Determination of Income and Employment in United States--Mexico Border Region Economies," 34 pp., Sep 1981, AD A106 340
*Associate Professor of Economics, Arizona State University
- PP 322
Warner, John T., "Issues in Navy Manpower Research and Policy: An Economist's Perspective," 66 pp., Dec 1981, AD A110 221
- PP 323
Bosse, Frederick M., "Generation of Correlated Log-Normal Sequences for the Simulation of Clutter Echoes," 33 pp., Dec 1981
- PP 324
Horowitz, Stanley A., "Quantifying Seapower Readiness," 6 pp., Dec 1981 (Published in Defense Management Journal, Vol. 18, No. 2), AD A110 220
- PP 326
Roberts, Stephen S., "Western European and NATO Navies, 1981," 27 pp., Jul 1982, AD A118 703
- PP 327
Hannon, Colin (Capt., USN), and Graham, David R., "Estimation and Analysis of Navy Shipbuilding Program Disruption Costs," 12 pp., Mar 1980, AD A112 514
- PP 328
Weinland, Robert G., "Northern Waters: Their Strategic Significance," 27 pp., Dec 1980, AD A112 509
- PP 329
Mangai, Marc, "Applied Mathematicians And Naval Operators," 40 pp., Mar 1982 (Revised), AD A116 598
- PP 330
Lockman, Robert F., "Alternative Approaches to Attrition Management," 30 pp., Jan 1982, AD A112 510
- PP 331
Roberts, Stephen S., "The Turkish Straits and the Soviet Navy in the Mediterranean," 15 pp., Mar 1982 (Published in Navy International)
- PP 332
John, Christopher, "The RDF and Amphibious Warfare," 36 pp., Mar 1982, AD A113 592
- PP 333
Lee, Lung-Fel,* and Trost, Robert P., "Estimation of Some Limited Dependent Variable Models with Application to Housing Demand," 26 pp., Jan 1982. (Published in Journal of Econometrics 8 (1978), AD A 112 536
*University of Minnesota
- PP 334
Kenny, Lawrence W.;* Lee, Lung-Fel;** Maddala, G. S.;* and Trost R. P., "Returns to College Education: An Investigation of Self-Selection Bias Based on the Project Talent Data," 15 pp., Jan 1982. (Published in International Economic Review, Vol. 20, No. 3, Oct 1979), AD A112 480
*University of Florida
**University of Minnesota
- PP 335
Lee, Lung-Fel;* Maddala, G. S.,** and Trost, R.P. "Asymptotic Covariance Matrices of Two-Stage Probit and Two-Stage Tobit Methods for Simultaneous Equations Models with Selectivity," 13 pp., Jan 1982. (Published in Econometrica, Vol. 48, No. 2, Mar 1980), AD A112 483
*University of Minnesota
**University of Florida
- PP 336
O'Neill, Thomas, "Mobility Fuels for the Navy," 13 pp., Jan 1982. (Accepted for publication in Naval Institute Proceedings), AD A112 511
- PP 337
Warner, John T., and Goldberg, Matthew S., "The Influence of Non-Pecuniary Factors on Labor Supply: The Case of Navy Enlistment Personnel," 23 pp., Dec 1981, AD A113 094
- PP 339
Wilson, Desmond P., "The Persian Gulf and the National Interest," 11 pp., Feb 1982, AD A112 505
- PP 340
Lurie, Philip; Trost, R. P.; and Berger, Edward, "A Method for Analyzing Multiple Spell Duration Data," 34 pp., Feb 1982, AD A112 504
- PP 341
Trost, Robert P., and Vogel, Robert C.,* "Prediction with Pooled Cross-Section and Time-Series Data: Two Case Studies," 6 pp., Feb 1982, AD A112 503
*Southern Illinois University
- PP 342
Lee, Lung-Fel;* Maddala, G. S.,** and Trost, R. P., "Testing for Structural Change by D-Methods in Switching Simultaneous Equations Models," 5 pp., Feb 1982, AD A112 482
*University of Minnesota
**University of Florida
- PP 343
Goldberg, Matthew S., "Projecting the Navy Enlisted Force Level," 9 pp., Feb 1982, AD A112 484
- PP 344
Fletcher, Jean, W., "Navy Quality of Life and Reenlistment," 13 pp., Nov 1981, AD A113 095

- PP 343
Utgoft, Kathy, and Thaler, Dick, "The Economics of Multi Year Contracting," 47 pp., Mar 1982. (Presented at the 1982 Annual Meeting of the Public Choice Society, San Antonio, Texas, 5-7 Mar 1982), AD A114 732
*Cornell University
- PP 346
Rostker, Bernard, "Selective Service and the All-Volunteer Force," 23 pp., Mar 1982, AD A113 096
- PP 347
McConnell, James, M., "A Possible Counterforce Role for the Typhoon," 24 pp., Mar 1982, AD A116 601
- PP 348
Jondrow, James, and Trost, Robert, "An Empirical Study of Production Inefficiency in the Presence of Errors-in-The-Variables," 14 pp., Feb 1982, AD A113 991
- PP 349
Breckenridge, W. M.,* and Maimin, O. Kim, "Collisional Intramultiplet Relaxation of $Cd(S_{5/2}P_{0,1,2})$ by Alkane Hydrocarbons," 7 pp., Jul 1981. (Published in Journal of Chemical Physics, 76(4), 15 Feb 1982), AD A113 093
*University of Utah, Dept. of Chemistry
- PP 350
Levin, Marc, "A Method for Increasing the Firepower of Virginia Class Cruisers," 10 pp., Apr 1982. (To be published in U.S. Naval Institute Proceedings), AD A116 602
- PP 351
Coutre, S. E.,* Stanford, J. M.; Hovis, J. G.;* Stevens, P. W.,* and Wu, T. T.,* "Possible Three-Dimensional Backbone Folding Around Antibody Combining Site of Immunoglobulin HDPC 167," 18 pp., Apr 1982 (Published in Journal of Theoretical Biology)
*Northwestern University, Depts. of Biochemistry & Molecular Biology and Engineering Sciences & Applied Mathematics
- PP 352
Berfoot, C. Bernard, "Aggregation of Conditional Absorbing Markov Chains," 7 pp., Jun 1982 (Presented to the Sixth European Meeting on Cybernetics and Systems Research, held at the University of Vienna, Apr 1982), AD A116 603
- PP 353
Berfoot, C. Bernard, "Some Mathematical Methods for Modeling the Performance of a Distributed Data Base System," 18 pp., Jun 1982. (Presented to the International Working Conference on Model Realism, held at Bad Honnef, West Germany, Apr 1982), AD A116 604
- PP 354
Hall, John V., "Why the Short-War Scenario is Wrong for Naval Planning," 6 pp., Jun 1982., AD A118 702
- PP 356
Cylike, Steven; Goldberg, Matthew S.; Hogan, Paul; and Mairs, Lee; "Estimation of the Personal Discount Rate: Evidence from Military Reenlistment Decisions," 19 pp., Apr 1982, AD A122 419
- PP 357
Goldberg, Matthew S., "Discrimination, Nepotism, and Long-Run Wage Differentials," 13 pp., Sep 1982 (Published in Quarterly Journal of Economics, May 1982)
- PP 358
Akst, George, "Evaluating Tactical Command And Control Systems—A Three-Tiered Approach," 12 pp., Sep 1982, AD 122 478
- PP 359
Quester, Aline; Fletcher, Jean; and Marcus, Alan; "Veteran Status as a Screening Device: Comment," 26 pp., Aug 1982, AD A123 658
- PP 361
Quenbeck, David B., "Methods for Generating Aircraft Trajectories," 51 pp., Sep 1982, AD A122 386
- PP 362
Horowitz, Stanley A., "Is the Military Budget Out of Balance?," 10 pp., Sep 1982, AD A122 368
- PP 363
Marcus, A. J., "Personnel Substitution and Navy Aviation Readiness," 35 pp., Oct 1982, AD A122 420
- PP 364
Quester, Aline, and Nakada, Michael, "The Military's Monopsony Power," 29 pp., Oct 1982, AD A123 657
- PP 365
Greer, William L., and Bartholomew, James C., (Cdr,USN), "Psychological Aspects of Mine Warfare," 15 pp., Oct 1982 AD A128 244
- PP 366
Spruill, Nancy L., and Gestwirth, Joseph L.,* "On the Estimation of the Correlation Coefficient From Grouped Data," 9 pp., Oct 1982, (Published in the Journal of the American Statistical Association, Sep 1982, Vol. 77, No. 379, Theory and Methods Section), AD A122 382
*George Washington University, Dept. of Statistics
- PP 367
Petersen, Charles C., "Soviet Tactics for Warfare at Sea (Two Decades of Upheaval)," 57 pp., Nov 1982
- PP 368
Weinland, Robert G., "The Evolution of Soviet Requirements for Naval Forces—Solving the Problems of the Early 1960s," 41 pp., Dec 1982, AD A123 655
- PP 369
Quester, Aline, and Lockman, Robert, "The All-Volunteer Force: A Positive Perspective," 29 pp., Nov 1982, AD A128 279
- PP 370
Rostker, Bernard D., "Human Resource Models: An Overview," 17 pp., Nov 1982, AD A123 656
- PP 372
Hurley, William J., "An Overview of Acoustic Analysis," 46 pp., Jan 1983, AD A128 316
- PP 373
Jacobson, Louis, "Research to Quantify the Effect of Permanent Change of Station Moves on Wives' Wages and Labor Supply," 35 pp., Jan 1983, AD A128 300
- PP 374
Clay-Mendez, Deborah, and Ballis, Ellen, "Balancing Accession and Retention: The Disaggregate Model," 27 pp., Aug 1982

- PP 375
Feldman, Paul, "Privatizing Airports in Washington, D.C.," 17 pp., Feb. 1983, AD A128 236
- PP 376
Weiss, Kenneth G., "Power Grows Out of the Barrel of a Gunboat: The U.S. in Sino-Soviet Crises," 136 pp., Dec 1982
- PP 377
Anger, Thomas E., "The Outlook for Military Operations Research," 14 pp., Apr 1983
- PP 379
Jondrow, James M.; Chase, David E.; and Gamble, Christopher L., "The Price Differential Between Domestic and Imported Steel," 17 pp., May 1983
- PP 380
Bells, Ellen, "Balancing Accession and Retention: Cost and Productivity Tradeoffs," 38 pp., Mar 1983
- PP 381
Reeves, John M. L., "CNA's Conceptual Design and Cost Models for High-Speed Surface Craft," 23 pp., Apr 1983, AD A128 245
- PP 382
Levy, Robert A., and Jondrow, James M., "The Adjustment of Employment to Technical Change in the Steel and Auto Industries," 40 pp., May 1983
- PP 383 (Revised)
Thomas, James A., Jr. and Mengel, Marc, "Properties of Quick Look Passive Localization," 39 pp., Jul 1983
- PP 384
Goldberg, Matthew S., and Heger, Michael F., "A Comparison of the Prophet and ACOL Force Projection Models," 35 pp., Jun 1981
- PP 385
Angier, Bruce; Driscoll, Kurt; and Gregory, David, "Manpower Requirements Derivation for the Navy Comprehensive Compensation and Supply Study," 22 pp., Sep 1982
- PP 386
Angier, Bruce M.; Driscoll, Kurt A.; and Carpenter, Kathy A., "Construction of 'Training Cost Per Graduate' for the Navy Comprehensive Compensation and Supply Study," 67 pp., Nov 1982
- PP 387
Bells, Ellen, and Clay-Mendez, Deborah, "Balancing Accession and Retention: The Aggregate Model," 20 pp., Jul 1982
- PP 388
Clay-Mendez, Deborah, "Models of Accession and Retention," 11 pp., Oct 1982
- PP 389
Clay-Mendez, Deborah, "A Minimum Recruiting Cost Function for Male High School Graduates," 31 pp., Jan 1982
- PP 390
Clay-Mendez, Deborah, "Documentation for the Recruiting Cost Estimates Utilized in the Navy Comprehensive Compensation and Supply Study," 30 pp., Sep 1982
- PP 391
Goldberg, Larry, "Summary of Navy Enlisted Supply Study," 11 pp., Jul 1981
- PP 392
Warner, John T., and Simon, Bruce, "An Empirical Analysis of Pay and Navy Enlisted Retention in the AVF: Preliminary Results," 31 pp., Dec 1979
- PP 394
McGibney, Donald; Camerini, Ugo; Roberts, Arthur; and Winston, Roland, "Development of an Underwater High Sensitivity Cherenkov Detector: See Urchin," 20 pp., Aug 1983
- PP 396
Jondrow, James M.; Brechling, Frank; and Marcus, Alan; "Older Workers in the Market for Part-Time Employment," 34 pp., Aug 1983
- PP 398
Levy, Robert A.; Bowes, Marianne; and Jondrow, James M.; "Technical Change and Employment in the Steel, Auto, Aluminum, Coal, and Iron Ore Industries," 25 pp., Sep 1983
- PP 399
Roberts, Stephen, "Western European and NATO Navies," 23 pp., Nov 1982
- PP 400
Laird, Robbin F., "French Nuclear Forces in the 1980s and 1990s," 37 pp., Aug 1983
- PP 401
Maloney, Arthur P., "The Berlin-Baghdad Railway as a Cause of World War I," 27 pp., Jan 1984
- PP 402
Herz, Henry L., "A Parametric Analysis of Duels," 41 pp., Mar 1984
- PP 405
Petersen, Charles C., "Aircraft Carriers in Soviet Naval Theory From 1960 to the Falklands War," 20 pp., Jan 1984
- PP 406
Bowes, Marianne, "Profit-Maximizing vs. Optimal Behavior in a Spatial Setting: Summary and Extensions," 10 pp., Jan 1984
- PP 407
Laird, Robbin F., "The French Strategic Dilemma," 41 pp., Mar 1984
- PP 408
Marcus, Alan, and Quester, Aline, "Measuring the Productivity of First Term Navy Enlistees," 30 pp., Apr 1984
- PP 411
Horowitz, Stan, "Skill Mix, Experience and Readiness," 12 pp., Oct 1983
- PP 412
McConnell, James M., "The Interacting Evolution of Soviet and American Military Doctrines," 119 pp., Sep 1980

END

FILMED



DTIC